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ABSTRACT

Designed to promote Manitoba students' familiarity with computer technology and their ability to interact with that technology, the Computer Applications and Technology 105 course is a one-credit course presented in 15 topical, non-sequential units that require 110-120 hours of instruction time. It has been developed with the assumption that each student will have hands-on computer access for at least 50% of the course time. The course consists of CORE modules, which are mandatory for all students and constitute 60% of the program time, and OPTION modules, which offer flexibility in designing a program to meet individual student needs, making up 40% of the time. The first of two main CORE units takes up 45% of the time and focuses on personal productivity tools, i.e., database management, desktop publishing, graphics, spreadsheets, telecommunication, and word processing. The second CORE unit occupies 15% of the time and covers using a computer language. (The eight OPTION units are: (1) Applications and Implications; (2) Consumerism; (3) Personal Productivity Tools; (4) Computer Evolution; (5) Keyboarding; (6) New Technologies; (7) Operating the System; and (8) Videography. Each of the CORE units may take up to 10% of the time. Information on the reproduction of materials and Canadian copyright law is also provided in both English and French. (ALF)

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1991

computer applications and technology 105

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PROGRAM OVERVIEW

PROGRAM OVERVIEW

Introduction and Rationale

Educators generally believe that a primary purpose of the schooling process is to prepare students to take an active role in society. The acquisition of numeric, scientific, and language literacy is recognized as being essential to a balanced education. It is generally recognized that society has reached the "Information Age"; therefore, to maintain a balanced education and to ensure that students will be able to take an active and productive role in today's society, a new literacy must be acquired. Students must become familiar with computer applications and technology; they must become computer literate.

Through teaching Computer Applications and Technology 105, schools can contribute not only to the students' acquisition of basic technological information, but also to the students' application of computer technology for personal use.

The Computer Applications and Technology 105 curriculum, which provides "hands-on" experiences for students, offers a forum for the discovery of both the capabilities and the limitations of computers. The interaction with computer technology in this manner will result in a reduction of student fears and misunderstandings about computers.

To better appreciate the capabilities of computer technology, students should be exposed to "hands-on" experiences for the maximum time practical. This curriculum has been developed with the assumption that each student will have computer access for at least 50% of the course time.

Goals

Based on the computer awareness model for Manitoba as defined in the 1982 *Report of the Manitoba Computer Awareness Task Force* (K-12), the Computer Applications and Technology 105 course has been designed to promote students' familiarity with computer technology and their ability to interact with that technology.

In support of this, the course has the following general goals:

1. To promote a balanced view of the role of computer technology in society.
2. To understand the social and ethical implications of the use of technology in society.
3. To create an awareness of the rapid growth of computer technology.
4. To develop confidence in the use of computer systems.
5. To facilitate the use of computer software for personal productivity.
6. To develop problem-solving skills using computer technology.
7. To raise consumer consciousness to allow for informed computer hardware and software purchasing.

Program Design

Computer Applications and Technology 105 consists of CORE modules, which must be studied by all students, and OPTION modules, which offer teachers flexibility in designing a program of studies to meet individual student needs. The CORE (C.) modules constitute 60% of the overall program time, with the OPTION (Op.) modules making up the remaining 40%.

In unit C.I: Personal Productivity Tools, students are expected to cover a minimum of three personal productivity tools. The time spent on each of the productivity tools selected should be approximately the same, with no more than 15% devoted to any one tool.

Although certain units are classified as OPTIONS, the material contained in those units may not be optional. For example, Op.V: Keyboarding and Op.VII: Operating the System contain material which is not optional. Depending upon the previous experience of the students enrolled in this course, some or all of this material may need to be covered.

CORE (60%)

C.I: Personal Productivity Tools (45%)

- A. Database Management
- B. Desktop Publishing
- C. Graphics
- D. Spreadsheets
- E. Telecommunication
- F. Word Processing

C.II: Using a Computer Language (15%)

Note: Students are expected to study a minimum of three of the above personal productivity tools. Approximately the same amount of time should be spent on each tool selected for study.

OPTIONS (40%)

Op.I: Applications and Implications
Op.II Consumerism
Op.III: Personal Productivity Tools
Op.IV: Computer Evolution
Op.V: Keyboarding
Op.VI: New Technologies
Op.VII: Operating the System
Op.VIII: Videography

Note: A minimum of four of the above options must be selected. The total time spent on any one selected option module should not exceed 10% of the overall program time.

programs. In addition, students will have the opportunity to decide if they have an interest in continuing with further studies in computer programming in the senior years.

OPTIONS

Op.I: Applications and Implications (up to 10%)

Attaining an understanding of the applications and implications of computer technology in society is important. This unit is developed around four conceptual themes and a number of specific applications. The themes are as follows:

- Hardware and Software
- Privacy and Security
- Impact of Computer Technology in the Workplace
- Impact of Computer Technology on the Individual

It is expected that students will adequately cover these themes in a minimum of two of the application areas listed in the unit.

Op.II: Consumerism (up to 10%)

This unit will introduce students to some of the major considerations to be taken into account when purchasing hardware and software for personal use.

Op.III: Personal Productivity Tools (up to 10%)

This unit will provide students with the opportunity to explore one or more of the personal productivity tools found in C.I: Personal Productivity Tools. (The time spent on any one tool is not to exceed 15% of the total course time.)

Op.IV: Computer Evolution (up to 10%)

When studying this unit, students will become familiar with the development process that computers have undergone to reach their present level of sophistication. Furthermore, students will be made aware of the contributions of a variety of individuals and companies to the development of the present-day computer. Students will be given the opportunity to examine the implications of technological advances and how they relate to today's use of computers.

Op.V: Keyboarding (up to 10%)

This unit will introduce students to the terms and techniques associated with proper keyboarding. It should be understood that this unit is not a replacement for a touch typing course, but, rather, is introduced solely for the purpose of providing students with some elementary keyboarding skills which will allow them to interact with the computer in a more efficient manner.

Op.VI: New Technologies (up to 10%)

The intent of this unit is to allow teachers to present students with information not available at the time of the writing of this document. It should be noted that the presentation is to be more than a mere show-and-tell presentation. The intent is to allow students to actually experience whatever new technologies are available to the teacher.

Op.VII: Operating the System (up to 10%)

This unit will allow students to become familiar with the operation of the components associated with a computer system. The students will become familiar with the terminology associated with

General Program Overview

CORE

C.I: Personal Productivity Tools (45%)

C.I(A): Database Management

This unit will introduce students to the concept that data is a resource which must be managed so that it may be used effectively and efficiently. The students will discover that a database is a shared collection of interrelated information. They will discuss the impact that the sharing of this information has upon their personal right to privacy, and they will learn how to manipulate the information contained in the database.

C.I(B): Desktop Publishing

This unit will introduce students to the concept of desktop publishing.

C.I(C): Graphics

This unit will allow students to explore the graphics capabilities of the computer. The exploration will involve the use of a graphic image generating program. (Teachers are reminded that this unit may require the full 15% of the allocated course time. Most of the students' time will be spent experimenting and creating graphic images.)

C.I(D): Spreadsheets

This unit will allow students to begin exploring the electronic spreadsheet. The students will learn that the electronic spreadsheet is used to replace the more traditional accountant's tools such as the columnar pad, pencil, and calculator. In addition to learning some of the basic operations and terms relating to the electronic spreadsheet, students will learn how to make predictions utilizing the "what if" capabilities of an electronic spreadsheet.

C.I(E): Telecommunication

In studying this unit, students will experience first-hand the satisfaction of being able to communicate directly with a remote computer, and indirectly with a person in a remote location. They will become familiar with some of the terminology commonly associated with telecommunication. In addition, students will learn to evaluate the strengths and weaknesses of telecommunication systems.

C.I(F): Word Processing

This unit will allow students to utilize the basic aspects of a word processing program. Students will have the opportunity to edit documents, create documents, and familiarize themselves with some of the terminology commonly associated with word processing.

C.II: Using a Computer Language (15%)

In studying this unit, students will provide the computer with the instructions necessary to perform a specific task. These instructions will be in Logo or BASIC. This unit is important to the students' overall development in that they will gain an appreciation of the amount of work involved in producing computer programs and develop insights into computer system operations. Furthermore, students will come to realize the self-discipline required to work with a computer language, understand that the operation of a computer is not a mystical phenomenon, and develop some of the skills used in a dedicated language within larger application

computer systems and be able to identify and correct minor problems which can plague computer systems.

Op.VIII: Videography (up to 10%)

This unit will allow students to create slide shows and animated computer graphics which may be used for presentations. The presentations can be displayed using a VCR, a computer monitor, or a projection unit such as an overhead palette. An extension of this unit could include an exploration of Desktop Video.

Objectives

CORE

C.I: Personal Productivity Tools (45%)

C.I(A): Database Management

The students should be able to:

1. Recognize the terms commonly associated with database management.
2. Demonstrate the use and limitations of a non-electronic database.
3. Load a database management program into computer memory.
4. Select a prepared database using the database management program.
5. Search a database using:
   a) a single condition;
   b) multiple conditions.
6. Change records in a database.
7. Add records to a database.
8. Delete records from a database.
9. Perform the following types of sorts:
   a) numeric;
   b) alphanumeric.
10. Use prepared report formats to print:
    a) a single record;
    b) a group of records;
    c) specified fields in a single record;
    d) specified fields in a group of records.
11. Design a database.
12. Utilize software-specific techniques to generate output to the screen and the printer.

Enhancement:

13. Prepare and print a mail merge document.

C.I(B): Desktop Publishing

The students should be able to:

1. Recognize the terms commonly associated with desktop publishing.
2. Identify common page layouts.
3. Prepare the text for a one-page newsletter.
4. Load desktop publishing software.
5. Create the page layout grid for a newsletter.
6. Create and position text boxes.

7. Place the body text into text boxes.
8. Key in text for a masthead.
9. Create and position a graphic box.
10. Import a graphic.
11. Format a document to include two fonts.
12. Format a document to include three type styles.
13. Save a document.
14. Print a document.

C.I(C): Graphics

The students should be able to:

1. Recognize the terms commonly associated with computer graphics.
2. Use a commercial graphics program to load and produce a printout of a graphic image.
3. Load, modify, save, and print an existing graphic image.
4. Create, save, and print an original graphic image.

C.I(D): Spreadsheets

The students should be able to:

1. Recognize the terms commonly associated with spreadsheets.
2. Demonstrate the use of a non-electronic spreadsheet.
3. Load a spreadsheet program into computer memory.
4. Load a prepared spreadsheet file into the spreadsheet work-space.
5. Save a spreadsheet file on a disk.
6. Navigate to specified locations within a spreadsheet by using:
   a) cursor moves;
   b) a command to move to a specified cell;
   c) vertical or horizontal scrolling.
7. Change a value in one cell and observe the results of the re-calculation.
8. Edit a label on a prepared spreadsheet.
9. Insert and delete rows/columns.
10. Create formulas involving the following operations:
    a) addition;
    b) subtraction;
    c) multiplication;
    d) division.
11. Demonstrate the correct use of the column and row addition functions of the spreadsheet.
12. Print a spreadsheet.
13. Use a spreadsheet to solve a specific problem.

Enhancements:

14. Format numeric output to appear in the following ways:
    a) dollars and cents;
    b) integers.
15. Create lines.
16. Invoke row/column title locking.
17. Replicate (copy) formulas into other cells.

18. Format labels within a cell.
19. Use the maximum and minimum functions.

C.I(E): Telecommunication

The students should be able to:

1. Recognize the terms commonly associated with telecommunication.
2. Identify and explain seven uses of telecommunication.
3. List advantages of:
   a) electronic mail and bulletin board services;
   b) on-line databases;
   c) linking microcomputers;
   d) facsimile transmission;
   e) file transfers;
   f) special applications such as banking, on-line video, and electronic ordering.
4. List disadvantages of telecommunication.
5. Explain the importance of communication standards.
6. Load a communication program.
7. Successfully log on to a remote computer service.
8. Read, send, print, and delete a message.
9. Successfully log off a remote computer service.

Enhancements:

10. Create an auto log file.
11. Obtain specified information from an on-line database.
12. Upload and download a binary file.
13. Send a letter to several people simultaneously.

C.I(F): Word Processing

The students should be able to:

1. Recognize the terms commonly associated with word processing.
2. Load a word processing program.
3. Use the cursor control keys.
4. Edit a document, performing the following tasks:
   a) delete a character, word, sentence, and paragraph;
   b) insert a character, word, sentence, and paragraph;
   c) centre headings;
   d) transfer/move paragraphs.
5. Transfer a document to a disk, which will involve:
   a) saving the document;
   b) producing a directory listing of a disk.
6. Print a document.
7. Remove a file from a data disk.
8. Quit a word processing program.
9. Replace one character/word with another character/word.
10. Key in a prepared document, which will include:
    a) setting a number of left tabs;
    b) underlining words.

Enhancements:

11. Recognize additional terms associated with word processing.
12. Key in an original document.
13. Format a document, performing the following tasks:
    a) set margins — top, bottom, and side;
    b) set tab stops — right, left, centre, and decimal;
    c) set line spacing;
    d) justify text in a document;
    e) insert headers and footers;
    f) insert page breaks.
14. Use superscripts and subscripts.

C.II: Using a Computer Language

The students should be able to:

1. Solve a problem by separating it into its component parts.
2. Code the solution to a problem using a computer language.
3. Test a program to ensure that it executes correctly, and make any required changes.
4. Use a peripheral device to:
    a) save a program;
    b) load a program;
    c) print a program listing and output.

OPTIONS

Op.I: Applications and Implications (up to 10%)

The students should be able to:

1. Describe the specific hardware and software being used to meet the particular needs of a given application area.
2. Describe ways in which information is collected, stored, and shared by organizations.
3. Identify measures used to secure data.
4. Describe some benefits and misuses of collecting, storing, and sharing data.
5. Recognize that laws exist which protect an individual's right to privacy of information in Canada.
6. Identify various tasks or careers which have changed as a result of computer technology.
7. Discuss positive and negative effects that computer technology has had on the workplace environment.
8. Describe possible future trends resulting from the use of computer technology.
9. Identify various careers or jobs requiring knowledge of computer technology.
10. Describe the positive and negative impact of computer technology on the individual.
11. Understand that occupational goals/skills may have to be realistically modified as a result of the impact of computer technology.

Op.II: Consumerism (up to 10%)

The students should be able to:

1. Recognize and understand the terms associated with computer memory.
2. Recognize and understand the terms associated with computer storage media.
3. Recognize and understand the terms associated with computer monitors.
4. Recognize and understand the terms associated with computer printers.
5. Recognize and understand the terms associated with computer interface cards.
6. Evaluate software.
7. Identify the sequence of steps that should be taken when purchasing a computer system.

Op.III: Personal Productivity Tools (up to 10%)

The teacher or the students may:

1. Select a productivity tool in addition to those already studied in the C.I: Personal Productivity Tools. Referring to the Core section, the teacher should choose specific objectives to fit the time available.

   OR

2. Select one or more productivity tools studied previously in the Core unit. The time spent on any one tool in the Core unit and in this Option unit is not to exceed 15% of the total course time. The teacher should give students an opportunity to extend their use of the tool(s) by completing the enhancement objectives or by providing more extensive exercises which incorporate multiple objectives from the Core unit.

Op.IV: Computer Evolution (up to 10%)

The students should be able to:

1. Describe the contributions made by various people and companies to the development of modern-day computers.
2. Identify the various generations of electronic computers and note their respective characteristics.
3. Discuss the implications of the speed, cost, reliability, and size of the various generations of computers.
4. Recognize/identify uses of the microprocessor in daily life.

Op.V: Keyboarding (up to 10%)

The students should be able to:

1. Recognize the terms associated with keyboarding.
2. Demonstrate the procedure of getting the work-station ready.
3. Demonstrate the correct posture when seated at the keyboard.
4. Demonstrate the correct finger position on the home row keys.
5. Demonstrate the correct stroking technique for all characters (letters and punctuation marks) found on the keyboard.
6. Demonstrate the correct use of the Left and Right Shift keys.
7. Demonstrate the correct use of the Tab key.
8. Demonstrate the correct use of spacing after punctuation marks.

Op.VI: New Technologies (up to 10%)

The students should be able to:

1. Discuss why a "new" technology is thought of as being new.
2. Identify the uses of a "new" technology and explain its advantages and disadvantages.
3. Demonstrate the correct use of the "new" technology.

Op.VII: Operating the System (up to 10%)

The students should be able to:

1. Operate the following hardware components:
   a) monitor;
   b) keyboard;
   c) printer;
   d) disk drive(s);
   e) local area network (LAN) (if applicable);
   f) other available peripherals (mouse, plotter, etc.).
2. Identify common causes of disk damage/failure.
3. Detect and rectify low-level problems associated with computer hardware.
4. Explain the need for:
   a) a disk operating system (DOS);
   b) preparing a disk for use;
   c) backup.
5. Use the appropriate disk operating system commands to:
   a) produce a directory listing of the files contained on disk;
   b) prepare a disk to store data;
   c) copy single files from one disk to another;
   d) create a backup copy of a disk;
   e) remove a file from a disk;
   f) load an application program.
6. Describe the input/process/output/storage (IPOS) cycle.
7. Describe the basic components of all computers and give examples where applicable.
8. Understand that data storage and manipulation is accomplished in binary format within the computer.
9. Identify the commonly used types of storage media.
10. Recognize the terms associated with the electronic storage of information.
11. Explain the advantages and disadvantages associated with using a local area network as compared to using a number of individual microcomputers.

Op.VIII: Videography (up to 10%)

The students should be able to:

1. Prepare a data disk to store graphic/textual information.
2. Use the computer to create a series of related graphic images or text.
3. Save the images or text on the data disk.
4. Correctly connect a VCR to a computer.
5. Create a slide show or presentation.
6. Use a VCR to record and play back the output from a computer.

Program Implementation

Time Allotment

As a one-credit course, Computer Applications and Technology 105 requires 110-120 hours of instruction time. To maximize realization of the program goals, each student should be provided with at least 55-60 hours of "on-computer" time. All schools/ school divisions are expected to ensure that sufficient time is allocated to provide for the development of the objectives in individual programs.

The Guide

The curriculum outlined for Computer Applications and Technology 105 is a description of a set of concepts and skills related to computer technology.

The curriculum guide is written in a two-column format. The objectives outlined on the left-hand side of the guide identify those concepts and skills believed necessary in a technological age. Some Core units contain additional objectives under the heading, "Enhancements." These enhancements should be considered enrichment objectives and should be employed wherever necessary, within the recommended time guidelines.

Notes and explanations are found in the right-hand column. This column contains the following types of information:

- terminology;
- definitions;
- information relating to the specified objectives;
- examples;
- methodology;
- suggested student activities.

Sequence

The Computer Applications and Technology 105 guide consists of 15 units which are topical in nature. The identification of a preferred order of instruction has been omitted intentionally, giving teachers the freedom to determine the order to be followed in accordance with the available resources and individual student needs.

Teachers are reminded that the Computer Applications and Technology 105 course may be presented in a variety of ways, some of which are outlined below:

1. Completing one unit before beginning another (for example, completing Op.VII: Operating the System prior to beginning C.I: Personal Productivity Tools).
2. Integrating objectives from several units (for example, integrating those objectives from Op.VII: Operating the System that are necessary in C.I: Personal Productivity Tools).
3. Interspersing objectives from "hands-on" type of units with the objectives from "hands-off" type of units. This method of presentation will be necessary when there are more students than there are computers. For example, half of the students may be working on Op.I: Applications and Implications, and the remainder of the students may be working on C.I: Personal Productivity Tools.

Use of Computer Hardware

While the Computer Applications and Technology 105 curriculum places little emphasis on computer programming, most units have a large hands-on component. Therefore, it is necessary for the teacher and students to have as much access as possible to computer hardware throughout the duration of the course. A minimum of 50% hands-on time is recommended. It is suggested that at least one microcomputer be provided for every two students.

Role of Textbooks

The Computer Applications and Technology 105 curriculum guide does not prescribe any one textbook, but, rather, allows for flexibility in scope and approach by providing a framework which encourages teachers to consult outside materials in order that the course be enriched or modified to meet student needs. Teachers need access to and familiarity with various resources in order to accommodate different ability and interest levels of students; to select appropriate content and methodology; and to have at hand various exercises, activities, and simulations for remediation and enrichment.

1. Student Textbooks

For the benefit of those teachers expressing a need for student textbooks, two titles which best match the expectations for Computer Applications and Technology 105 in terms of purpose and content are identified below:

- Canadian Developed

  Wilkinson, Russell M., et al. *Using the Computer: Concepts and Applications*. Scarborough, ON: Prentice-Hall Canada, Inc., 1988. ISBN 0-13-940701-4

- American Developed

  Trainor, Timothy N. *Computer Concepts and Applications*. Santa Cruz, CA: Mitchell Publishing, Inc., 1987. ISBN 0-394-39502

As with any textbook, teachers are advised to examine these materials prior to ordering classroom sets.

2. Teacher References

From the extensive array of print resources reviewed by the members of the Computer Applications and Technology 105 Committee, the following two items were identified as having the best curriculum match:

Capron, H.L. *Computers: Tools For an Information Age*. Don Mills, ON: Addison-Wesley Publishing Co., 1987.

Szymanski, Roberta A., et al. *Introduction to Computers and Information Systems*. Toronto, ON: Merrill Publishing Co., 1988.

The first of these two items is an extensive reference containing detailed information suitable for teachers. The second item uses an encyclopedic approach, providing encapsulated information on a wide range of topics.

3. Other Resources

The implementation of Computer Applications and Technology 105 requires print, audio-visual, and software resources.

Print materials can be subdivided into student and teacher resources. Numerous student print materials are required for the 105 course. These can be centrally located in a resource centre or in the computer classroom, depending on the local situation.

Available print resources should include a readable dictionary of computer terminology; software and hardware manuals; posters showing the historical development of calculating devices, computer components, careers in computer technology, etc.; computer journals and periodicals; a vertical file of current articles; futuristic fictional works; and general publications dealing with computer use in an information age.

Audio-visual resources which constitute a necessary part of Computer Applications and Technology 105 include films, filmstrip kits, and videotapes dedicated to computer awareness. Such resources are available on loan through the Manitoba Education and Training Library. In order to avoid delays, teachers are advised to order these materials well in advance of their required date of use. Copies of videotape presentations prepared by Manitoba Education and Training or for which the Department has obtained "dubbing rights" can be obtained for permanent use by schools/school divisions.

Software for Computer Applications and Technology 105 is available through Courseware Distribution, located at the InfoTech Resource Centre, 1970 Ness Avenue, Winnipeg, or from local computer dealers. As there is an abundance of high quality software available, it is very difficult to identify specific titles which will be of value to all teachers and students. However, certain software packages have gained widespread acceptance among Manitoba educators, including the following: AppleWorks, Logo, Microsoft Works, MILINK, Printshop, and Publish It!.

Teachers/schools wishing to implement a specific unit in Computer Applications and Technology 105 should determine their software needs by consulting the requirements section found at the beginning of the respective units.

Evaluation

The evaluation of student achievement and program effectiveness is integral to the teaching-learning process. Evaluation should provide both the teacher and the student with information concerning the following:

1. Diagnosis and remediation.

The purpose of diagnosis is to identify a student's strengths and weaknesses. In the case of weaknesses, the cause of the problem may then be identified and appropriate remediation provided by the teacher.

2. Student growth in computer-related skills and understanding.

This is an integral part of a developmental program. Because growth is continuous, evaluation must also be continuous.

3. Learning strategies.

Evaluation results should be used to judge the effectiveness of the instructional process: program of experiences, materials of instruction, and strategies of teaching.

4. Program modification.

Modifications should be ongoing. Continuing feedback from the students regarding the appropriateness of the program is essential.

It is important that the assessment and evaluation of student progress reflect the wide variety of activities in Computer Applications and Technology 105. Assessments can be carried out in various ways, such as the following:

- evaluation on a daily basis with consideration being given to competency in the use of hardware, ability to work

within groups, and ability to follow instructions;

- interviews or conferences with individual students;
- student reports and projects;
- formal testing which includes some form of cumulative testing involving the objectives outlined in this guide. Oral, written, and hands-on tests could be given.

It is desirable that a wide range of methods be employed in student evaluation. In this way a more accurate assessment of progress may be obtained. Since not all students are comfortable with any one method, the excessive use of one particular mode of evaluation could significantly affect the results of some students. The use of diverse methods of assessment should assure fair and equitable results.

Special Needs Students

One measure of the effectiveness of a school system is its ability and willingness to accommodate its special needs students as well as to mainstream those students. Use of the computer as a tool makes it possible to individualize instruction in Computer Applications and Technology 105, thereby assisting in the process of accommodating special needs students. The microcomputer is the ideal tool for the complex process of assessing student needs, monitoring student progress, recommending resources, and evaluating student achievement and program effectiveness. The use of the computer is important to the education of all students, including:

1. disabled students and
2. gifted and talented students.

For students with disabilities the computer can be used to:

- increase motivation;
- increase writing skills through the use of a word processor;
- provide an alternate method of communication;
- assist in the control of their environment;
- provide a non-threatening learning environment;
- provide an interactive learning environment;
- illustrate abstract concepts visually.

In addition, gifted and talented students benefit from the increased scope computers provide for problem solving and creativity.

Student background and experience — including lifestyle, interest, and motivation — are the most important factors in determining the extent to which a student with a disability or a gifted and talented student can be accommodated in the regular Computer Applications and Technology 105 program. Consideration of these factors, as well as of a student's cognitive abilities and learning strengths and weaknesses, should determine the selection of appropriate teaching strategies and materials.

CORE

C.I: PERSONAL PRODUCTIVITY TOOLS (45%)

Introduction: As part of this unit, students are expected to cover a minimum of three personal productivity tools. The time spent on each of the productivity tools selected should be approximately the same. Teachers/students are to select from among the following personal productivity tools:

A. Database Management

B. Desktop Publishing

C. Graphics

D. Spreadsheets

E. Telecommunication

F. Word Processing

Requirements: The hardware and software requirements for each of the personal productivity tools vary somewhat. Teachers are reminded to check the requirements section at the beginning of each unit. For best results in meeting the stated objectives, teachers/students should choose those personal productivity tools for which the suggested hardware and software is available.

C.I (A): DATABASE MANAGEMENT

Introduction: This unit will introduce students to the concept that data is a resource which must be managed so that it may be used effectively and efficiently. The students will discover that a database is a shared collection of interrelated information. They will discuss the impact that the sharing of this information has upon their personal right to privacy, and they will learn how to manipulate the information contained in the database.

Goal: To create in students the understanding that a database is an organized collection of information relating to one topic and that database software allows for the electronic storage, updating, and retrieval of this information.

Requirements: A database management program, a printer, and a data disk.

The students should be able to :

1. Recognize the terms commonly associated with database management.

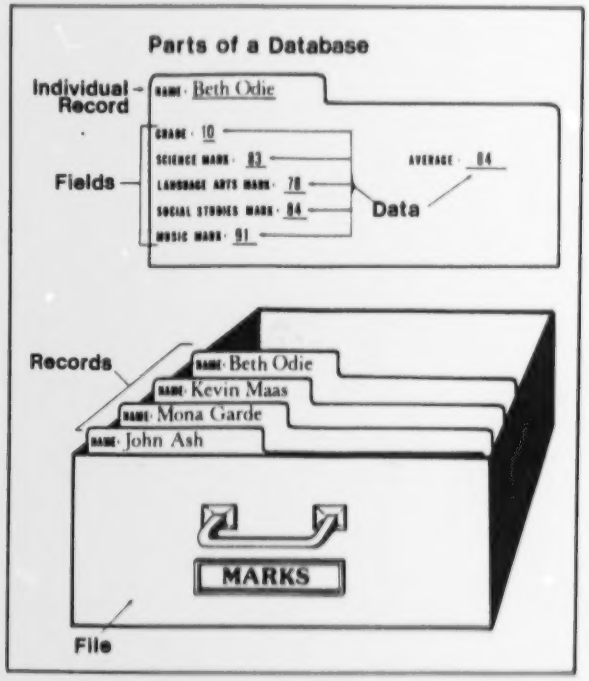
alphabetic data - data which contains letters only.

numeric data - data which contains the digits 0 to 9, a decimal point, and a positive or negative sign.

alphanumeric data - data which contains any combination of letters, numbers, and special characters.

field - a group of characters that represent a single piece of data such as a student's name.

record - a collection of related fields. An



example is a student record composed of name, address, and telephone fields.

database - a collection of related records. An example is a student database composed of individual student records.

template - an empty database containing the titles of all the fields which make up a record. An example is a record of student information laid out as follows:

NAME: _____
ADDRESS: _____
TELEPHONE: _____

search - the process of examining a database to find those records which satisfy predetermined condition(s).

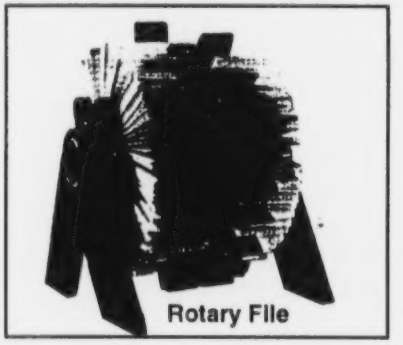
updating - the process of keeping the data in the database current. This is done by adding, deleting, and changing information contained in the records of the database.

sorting - the process of arranging existing records in alphabetic or numeric order according to the data contained in a specified field. This field is often referred to as the key field.

reporting - the process of assembling the data for output in the desired format.

on-line database - a database which is accessed from a remote site. The access from the remote site is accomplished by means of telecommunication involving a modem.

database management - the process of organizing data so that it may be accessed and maintained efficiently.


Rotary File

2. Demonstrate the use and limitations of a non-electronic database.

Examples of non-electronic databases are telephone directories, student record files, rotary files, and card catalogues.

Activity 1:

The following activity is to achieve objectives 3 to 10 inclusive.

The database for this activity might be a commercial one containing information from another subject area or a teacher-prepared database dealing with such topics as sports, school computer equipment, student marks, or fashion footwear. (See the following sample data, with suggested file name "Fashion Footwear.")

FASHION FOOTWEAR					
BRAND	STYLE	STYLE #	MATERIAL	USE	PRICE
Adidas	low cut	438	leather	leisure	high
Adidas	low cut	129	canvas	leisure	low
Converse	low cut	441	canvas	leisure	low
Brooks	low cut	586	leather/nylon	track	high
Adidas	low cut	7894	leather	volleyball	high
Converse	high cut	322	leather	basketball	high
Tiger	low cut	409	leather	leisure	high
Lynx	low cut	811	synthetic	leisure	low
Converse	low cut	849	leather	badminton	high
Brooks	low cut	775	leather/canvas	track	medium
Reebok	low cut	774	nylon	aerobics	medium
Bauer	low cut	591	leather	curling	high
Nike	low cut	101	leather	racquetball	high
Reebok	low cut	445	leather	cross-country	high
Bauer	low cut	602	leather	leisure	medium
Nike	high cut	902	leather	basketball	high

	Students should perform the following tasks:
3. Load a database management program into computer memory.	• Load the database management program.
4. Select a prepared database using the database management program.	• Select the prepared database.
5. Search a database using: a) a single condition;	• Search for all footwear suitable for basketball.
b) multiple conditions.	• Search for all medium-priced footwear suitable for leisure wear.
6 Change records in a database.	• Change the record containing style number 129 to style number 192.
7. Add records to a database.	• Add the following new record: Puma low cut 699 synthetic jogging medium
8. Delete records from a database.	• Delete the record whose brand name is Lynx.
9. Perform the following types of sorts: a) numeric;	• Sort on the Style Number category.
b) alphanumeric.	• Sort on the Brand Name category.
10. Use prepared report formats to print: a) a single record;	• Print the record whose style number is 409.
b) a group of records;	• Print the records where use is designated for basketball.

c) specified fields in a single record;

- Print the categories of brand name, style number, and material for the record where use is identified as racquetball.

d) specified fields in a group of records.

- Print the categories of brand name, material, and style for all records in the database.

Note: Not all software will permit switching of category order.

11. Design a database.

When designing a database, a choice of two types of activities are suggested:

- The teacher and the class prepare the database together.
- The students design and prepare their own database.

Activity 2:

The teacher and class should work together to prepare a database containing between six and ten fields. Have the class choose the type of information to be contained in the database and then label the fields with the appropriate headings. A suggestion for the contents of the database is information relating to Rock Videos, with categories such as Title, Artist, Type of Music, Record Company, Year, Special Effects, Suitable for Parents, etc. Another option is to prepare a database containing the students' personal data, using such headings as Name, Age, Height, Eye Colour, and Hair Colour. Once the fields have been named, have each student enter one complete record. Save the completed database. Once the database has been established and the teacher has prepared the report formats, the students should repeat the searching, sorting, and printing tasks outlined in Activity 1.

Activity 3:

This activity will allow students to design their own database. It is recommended that the teacher set certain minimum standards for the database. These standards should include an indication of the number of fields and records to be contained in the completed database. The design of the database and the data entry should be left to the students.

For those students having difficulty in selecting the type of information to include in the database, some suggestions are provided:

- a Christmas mailing list
- an inventory of a cassette or compact disk collection
- a summary of sports statistics such as the point totals for hockey players or the total yards gained for football players
- information about a student activity such as yearbook or ticket sales

Note: Educational versions of software allow fewer records than commercial versions.

Once the database has been established, the students should repeat only the searching and sorting tasks.

12. Utilize software-specific techniques to generate output to the screen and the printer.

After having completed the searching and sorting tasks in Activity 3, the students should be asked to produce a variety of reports from the information contained in their database. The teacher should refer to the software manual for the specific instructions detailing the variety of procedures for displaying information on the screen and on the printer.

Enhancement:

13. Prepare and print a mail merge document.

A mail merge is accomplished by having data from selected fields of a database inserted into a document prepared using a word processor. "Personalized junk mail" is a commonplace example of the use of this technique. Some integrated personal productivity tools have this capability built in (e.g., AppleWorks V2.0, MS-Works). Certain other programs such as MS-Word, WordPerfect, and dBase also allow for this type of activity.

Activity 4:

Have students prepare a personalized letter asking the recipients to purchase a lottery ticket from the school. The letter could explain what the purpose of the lottery is and what the first three prizes are. The letter should contain information from at least five categories in a database. Some examples of categories to include are Title (Mr., Mrs., Dr., etc.), First Name, Last Name, Street Address, City, Province, and Postal Code. The letter should be sent to selected individuals; for example, to those people whose last names begin with the letter L.

C.I (B): DESKTOP PUBLISHING

Introduction: This unit will introduce students to the concept of desktop publishing.

Goal: To create in students the understanding that desktop publishing involves the use of a computer to achieve the same ends as those accomplished by a graphic artist. (Graphic artists use traditional tools such as rulers, T-squares, knives, and adhesive wax or glue to prepare pasted-up versions of the final document. They also use graphic elements such as rules, tints, and graphics.)

Requirements: Desktop publishing software, a printer (capable of printing graphics), and a data disk.

The students should be able to:

1. Recognize the terms commonly associated with desktop publishing.

body text - the type specifications for the main body of text in a document.

clip art - graphic images which are prepared for use in a document.

crop - the cutting of an illustration to fit a given area or to remove unwanted background along the edges.

desktop publishing - the electronic design, layout, editing, and production of a publication using a personal computer, a printer, and a desktop publishing program.

font - the total array of characters in one typeface including upper case, lower case, figures, and punctuation.

graphic box - a square or rectangular frame drawn to hold and size a graphic in a document.

grid - the rectangular structure of a page layout.

linking - the joining together of text frames so that text will automatically flow and reflow as necessary through linked frames.

masthead - a distinctive type treatment of the title of a publication.

object-oriented layout - the manipulation of objects in a document to create a finished layout. An object is an element of the document, consisting either of a text frame or a graphic.

runaround - the process of flowing text around a graphic.

scale - a technique used to enlarge or reduce the size of a graphic or document page.

text box - a square or rectangular frame drawn for holding text in a document.

type style - variations of a font, such as bold or italic.

white space - blank areas on a page, used to help set off graphics and text and to give the reader visual resting places that help in absorbing printed information.

wraparound - the process of flowing text around a graphic so that the text conforms to the outline shape of the graphic.

2. Identify common page layouts.

Activity:

Have students collect and identify examples of three different types of page layouts. Some sources of material for this activity are newsletters, flyers, magazines, and newspapers.

COMMON PAGE LAYOUTS

Single Column | Double Column | Triple Column

3. Prepare the text for a one-page newsletter.

The students' text could include a biography of themselves and three classmates, a report on a school team or extra-curricular activity, or an announcement for an upcoming school event. If the desktop publishing software allows for the importing of text, have students prepare the text in a word processor. If this is not possible, proceed to the next objective.

4. Load desktop publishing software.

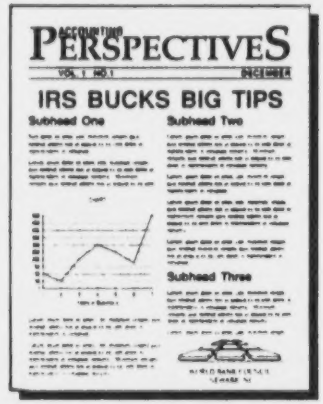
Configure the software to match the attached peripherals, such as the printer and monitor, and have students load the desktop publishing software into the computer memory using the instructions supplied with the software.

5. Create the page layout grid for a newsletter.

At this point, have students establish the number and width of the grid layout columns based on the capabilities of the software being used.

6. Create and position text boxes.

The newsletter could contain a masthead and should contain two or more columns of text.



The above variations of the layout for a sample newsletter appear in R.C. Parker, *Looking Good In Print* (Chapel Hill, NC: Ventana Press, 1988), p. 133. Reprinted with the permission of the publisher.

7. Place the body text into text boxes.

If the desktop publishing software allows for the importing of text, the previously created text may be placed into text boxes. If text importing is not allowed, have students key the text directly into the text boxes. At this point text column linking may be necessary.

8. Key in text for a masthead.

The masthead should contain the title of the newsletter.

9. Create and position a graphic box.

The graphic box may be positioned anywhere on the page.

10. Import a graphic.

Graphics may be included with the desktop publishing software, purchased separately as clip art, or created in the process of completing the graphics unit. It may be necessary to crop and/or scale the graphics.

11. Format a document to include two fonts.

It is generally accepted that one page of text should not contain more than two fonts. Some examples of fonts which may be used in the newsletter are Times, Courier, Helvetica, and Old English.

Times

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Engravers' Old English 30 point
Engravers' Old English 24 point
Engravers' Old English 18 point
Engravers' Old English 14 point
Engravers' Old English 12 point
Engravers' Old English 10 point

12. Format a document to include three type styles.

A type style may be used to emphasize a portion of the text in a document. Some common type styles are Bold, Italic, Outline, Shadow, and Underline.

BOLD
Italic
Outline
Shadow
Underline
Bold Shadow Outline
Bold Italic Outline

13. Save a document.

Have students use the appropriate software commands to save the document on the data disk.

14. Print a document.

Ensure that the printer is capable of printing graphics.

Activity:

Arrange and have students participate in a field trip to a commercial publisher that uses computerized page layout.

C.I (C): GRAPHICS

Introduction: This unit will allow students to explore the graphics capabilities of the computer. The exploration will involve the use of a graphic image generating program.

Goal: To create in students the understanding that computer-generated graphics provide an effective method of representing information in pictorial form.

Requirements: Graphics software package and printer with graphics capability.
Colour monitor/television (Optional).

The students should be able to:

1. Recognize the terms commonly associated with computer graphics.

   pixel - a picture cell. The smallest unit of a graphic image.

   resolution - the density and overall quality of a video display determined by the number of pixels on the screen. Displays may be characterized as high resolution or low resolution.

   palette - a grouping of icons allowing access to the various tools needed for working on a document.

   tools - the implements contained in a graphics package used to draw and refine artwork.

2. Use a commercial graphics program to load and produce a printout of a graphic image.

   Have students load one of the available graphic images from a commercial graphics program disk.

   Note: Teachers should configure or modify the printer setup of the commercial software package to ensure that a correct graphic printout is obtainable. It should be noted that if this aspect of a program is not tested and modified as required, the computer may become locked

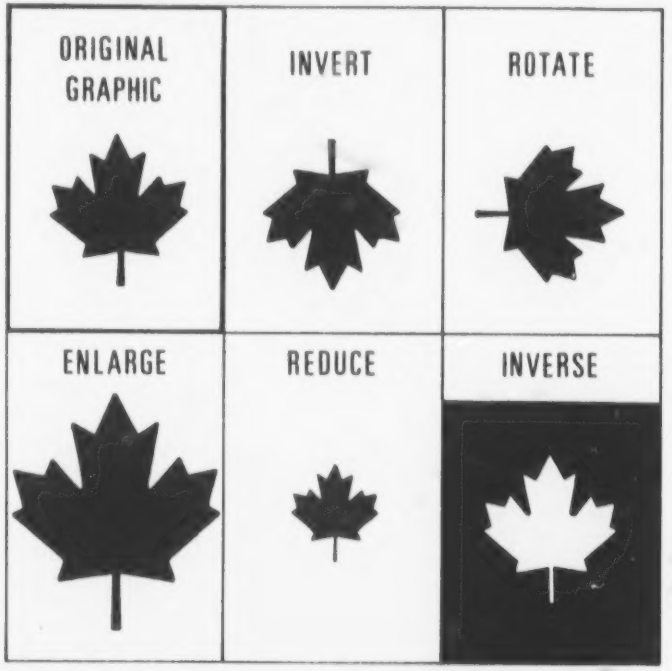
up. If this should happen, the computer may have to be shut off and then restarted.

3. **Load, modify, save, and print an existing graphic image.**

Using the commands of the graphics program, the students should alter the graphic image which was loaded from the disk. The altered graphic should be saved on the student's data disk. It is advisable to have the students choose a new name under which to store the altered graphic image. If the graphics program has the capacity, it is advisable to "write protect" the disk from which the students load the original graphic image. After saving the modified graphic image, the students should produce a printout of it.

Some possible modifications are:

- inverting
- rotating
- enlarging
- reducing
- stretching
- filling patterns
- scaling



Modifications of a Maple Leaf

Activity 1:

Produce an incomplete graphic and have the students finish it according to teacher-set criteria. For example:

- Using a pre-drawn Christmas tree, have students draw in the decorations and the presents under the tree.
- Using a pre-drawn football field, have students complete the line markings and possibly draw in some players.

Activity 2:

Have students alter a commercially prepared graphic using teacher-set criteria.

Activity 3:

If the requisite hardware is available, have students modify a digitized image. A digitized image can be obtained by using a scanner or video camera. For example, scan photographs of the students and have them alter their appearance by adding mustaches, hair, beards, glasses, black eyes, eye patches, etc.

4. Create, save, and print an original graphic image.

The built-in functions of graphics programs will vary from one manufacturer to the next. Therefore, variations in the complexity of the finished graphic images produced by students will be dependent not only upon the students' own abilities but also upon the capabilities of the graphics package being used.

Activity 1:

Using the functions built into the graphics program, the students should create an original graphic image. It is recommended that this portrayal be limited to a two dimensional representation. Upon completing the graphic image, the picture should be saved on the student's data disk and then printed. Some examples of graphics which may be produced are: logos, school crests, sports team logos, landscapes, house exteriors, four-panel cartoons, floor plans,

business cards with graphics, cartoon characters, simple business flyers, greeting cards, title pages, and stylizations using a vanishing point (see the example on the right).

Activity 2:

Using a single logo, students are to produce a T-shirt, a business card, a letterhead, and a simple one-page flyer.

Activity 3:

Using a common theme, students are to produce related sample outputs; for example, a T-shirt graphic, a business card, a letterhead, and a simple one-page flyer for a business.

Note: Graphics created in this unit may be used in conjunction with the Desktop Publishing unit and the Videography unit.

C.I (D): SPREADSHEETS

Introduction: This unit will allow students to begin exploring the electronic spreadsheet. The students will learn that the electronic spreadsheet is used to replace the more traditional accountant's tools such as the columnar pad, pencil, and calculator. In addition to learning some of the basic operations and terms relating to the electronic spreadsheet, students will learn how to make predictions utilizing the "what if" capabilities of an electronic spreadsheet.

Goal: To create in students the understanding that an electronic spreadsheet is a multi-column workspace used for arithmetic calculations.

Requirements: Printer, spreadsheet program, and data disks.

The students should be able to:

1. Recognize the terms commonly associated with spreadsheets.

non-electronic spreadsheet - data arranged in columns and rows creating a table or chart. In accounting this is called a worksheet.

electronic spreadsheet - a software package that permits users to create, manipulate, and analyze data organized in columns and rows.

row - a horizontal line of information usually designated by number. For example, row 4 is the fourth row from the top of the spreadsheet.

column - a vertical line of information usually designated by letter. For example, column C is the third column from the left of the spreadsheet.

cell - the space at the intersection of a row and a column which may contain a value, label, or formula.

label - text within one or more cells.

value - a number within a cell.

numeric data - data which contains digits 0 to 9, decimal points, and positive or negative signs.

alphanumeric data - data which contains the digits 0 to 9, decimal points, plus or minus signs, and letters. Students should be made aware that alphanumeric data should be entered as a label. Some examples of alphanumeric data are:

- 7UP
- Telephone numbers (555-1234)
- Street addresses (123 Anywhere Street)

formula - a mathematical expression which performs calculations. A formula may contain numbers, cell addresses, mathematical operators (+, -, /, *), and built-in functions.

function - a pre-defined mathematical or logical operation such as SUM.

template - a spreadsheet without data values but including formulas or labels.

2. Demonstrate the use of a non-electronic spreadsheet.

Display an example of a multi-column, multi-row worksheet or spreadsheet either with an overhead projector or in the form of a wall chart/table and show how tedious the calculations can be if the value in one or more cells is changed. An example could be calculating an average for a set of class marks.

Activity:

Have students manually calculate test means (averages) and student means (averages) for four students with three different test marks. Consider the following data:

	A	B	C	D	E
1		Test 1	Test 2	Test 3	Average
2					
3	Tom	57	68	81	
4	Bill	68	78	85	
5	Sally	77	85	66	
6	Mary	72	91	77	
7					
8	Average				

After the calculations have been completed, have the students change one or two marks and then recalculate all the values.

3. Load a spreadsheet program into computer memory.

Have students load a spreadsheet program into computer memory, following the instructions supplied with the software package.

4. Load a prepared spreadsheet file into the spreadsheet workspace.

Have students load a sample spreadsheet file using the appropriate instructions for the software package being used. The sample file can either be teacher-prepared or provided with the spreadsheet package.

Activities:

The activities listed below encompass objectives 3 to 13 inclusive.

Using the example from objective 2, have students load the teacher-prepared file. The formula for calculating the averages should be included in the teacher-prepared spreadsheet. The formula in cell E3 is (B3+C3+D3)/3 and in cell B8 is (B3+B4+B5+B6)/4. The formulas for the other averages are similar.

5. Save a spreadsheet file on a disk.

Students should save this example on their own data disks.

Have students manipulate the existing data by editing names. By changing test results, students should observe the corresponding changes in the averages.

Discuss and explore some "what-if" possibilities with the students. A suggestion is to have the students determine what marks they would need in order to achieve a particular average (e.g., 89).

At this point the teacher may wish to discuss with the students the advantages and uses of an electronic spreadsheet.

Have students alter the width of the name column to accommodate last names.

Have students insert a blank row between the names Bill and Sally and add their own names and marks to the class list. Students should now insert a column entitled Test 4 into which they should enter some sample data. Have students delete the row containing Tom's data.

Have students save the spreadsheet file on a data disk.

6. Navigate to specified locations within a spreadsheet by using:
   a) cursor moves;
   b) a command to move to a specified cell;
   c) vertical or horizontal scrolling.

These manipulations of the cursor are software-specific and further information about them may be obtained from the manual supplied with the software or from the help screens of the actual software.

7. Change a value in one cell and observe the results of the recalculation.

In some cases the recalculation will be automatic while in other cases it may not be. Have students consult the software manual for the various settings of the recalculation mode.

8. Edit a label on a prepared spreadsheet.

Editing a label consists of the modification of the text which already exists in the cell.

Have students expand or reduce the size of one or more columns to accommodate labels and/or values of different widths. Specific instructions to change column widths are described in the software documentation. It should be noted that certain spreadsheet programs will automatically adjust the width of a column to accommodate values/labels of any width.

9. Insert and delete rows/columns.

Inserting and/or deleting rows/columns allows the user to alter the spreadsheet.

10. Create formulas involving the following operations:
    a) addition;
    b) subtraction;
    c) multiplication;
    d) division.

Note: When entering the name of a cell in a formula, the cell name may have to be preceded by a special symbol such as a plus, minus, or equal sign, a decimal, or a left bracket. Formulas are calculated from left to right, but may not follow the order of operations. The order may be prescribed with the use of brackets.

11. Demonstrate the correct use of the column and row addition functions of the spreadsheet.

Column and row addition requires the use of the SUM function. Some spreadsheet programs allow for column and row averaging, which requires the use of the AVG function. If the AVG function is available, it is recommended that its use be demonstrated to the students.

12. Print a spreadsheet.

Two types of printouts may be possible, one with labels and values and one with formulas.

13. Use a spreadsheet to solve a specific problem.

After loading the spreadsheet package into the computer, have students type in headings across the top, type in appropriate labels down the left-hand side, and type in the formulas in the appropriate cells. A sample problem might be to determine the cost of tickets for admission to a school dance. A sample solution to this problem follows:

	A	B	C	D	E	F	G
1			SCHOOL	DANCE			
2							
3			ITEM	UNIT	NUMBER		
4				PRICE	ATTENDING		
5					100	200	300
6	VARIABLE	COSTS					
7			FOOD (for 1)	2.00	(D7*E5)		
8			DRINKS (for 1)	1.00	(D8*E5)		
9							
10	FIXED	COSTS					
11			MUSIC	300.00	(D11)		
12			SECURITY	50.00	(D12)		
13			DECORATIONS	40.00	(D13)		
14			PRIZES	25.00	(D14)		
15							
16	TOTAL	COSTS:					
17							
18	PRICE PER	TICKET					

E16 = (E7+E8+E11+E12+E13+E14) OR use a SUM function
E18 = (E16/E5)

Formulas for columns F and G are similar. The teacher may wish students to include them for comparison purposes.

A variety of "what-if" questions may be asked using this template. For example:

1. Calculate the break-even ticket price for different numbers of students in E5, F5, and G5, such as 150 or 350.

2. Calculate the ticket price if FOOD and/or DRINK costs change.

3. Calculate the ticket price if a fixed cost changes.

Note: This school dance example can be changed to a more challenging problem such as establishing a fixed ticket price and determining what profit or loss occurs. It would be possible to allow for different admission prices. For example, tickets could cost $5.00 when purchased in advance, and $6.00 when purchased at the door.

Additional Activities:

Formulas involving addition, subtraction, multiplication, and division are used in the following tasks:

1. Calculate bowling scores, including team and individual totals and averages.

2. Calculate a simple wage problem.

3. Calculate the sales tax on a list of items.

Note: Brackets may have to be used to ensure the correct order of operation.

Have students demonstrate the "what-if" capabilities by changing a cell value. For example, have them change the number of hours worked and/or the rate of pay in the wage activity suggested above.

Enhancements:

14. Format numeric output to appear in the following ways:
    a) dollars and cents;
    b) integers.

Refer to the software manual for specific instructions on numeric formatting. Some spreadsheet programs allow numeric data to be formatted with a user-specified number of decimal places. It is recommended that this procedure be demonstrated to the students if the software being used allows for this.

15. Create lines.

Underlining consists of inserting a horizontal line anywhere on the spreadsheet. Underlining is used to attract attention to an important aspect of the spreadsheet. It can be used to underline labels or to separate the results of calculations such as sums, averages, and maximum or minimum values. The use of the equal sign (=) key is effective when a double underline is required.

Note: In some software packages, an alternate way to attract attention to important data is to use the bold function.

16. Invoke row/column title locking.

Invoking row/column title locking allows one to scroll vertically or horizontally through the spreadsheet without loosing the heading across the top and/or the labels down the left-hand side of the spreadsheet. It should be noted that in some software packages the row labels are automatically locked.

17. Replicate (copy) formulas into other cells.

Copying formulas into rows or columns will involve either relative or absolute (no change) cell references. A relative copy is used when the formula references are changed relative to the coordinates of the new location. For example, a simple spreadsheet consists of two columns and three rows. The user enters a formula into cell A3 which will add the contents of cells A1 and A2. When the formula in A3 is copied into cell B3 so that it will perform the same operation on the values contained in column B, the cell references must be changed RELATIVE to column B.

	A	B
1	13	17
2	24	9
3	37	26

Note: Cell A3 contains the formula A1 + A2, while cell B3 contains the modified formula B1 + B2. If the formula in B3 had not been modified to reflect the fact that the values in column B should be summed, the value appearing in B3 would be a duplicate of what appears in A3, that is, 37. When a formula has been copied from one cell to another without any modification an ABSOLUTE copy has taken place.

18. Format labels within a cell.

Formatting labels in a cell means to right align, centre, or left align the label within the cell.

19. Use the maximum and minimum functions.

A large number of spreadsheet programs will allow for the determination of the maximum and minimum values in a range of values. This is most often accomplished using a built-in function of the spreadsheet program. Check the program manual to determine if the spreadsheet program being used has such capabilities.

C.I (E): TELECOMMUNICATION

Introduction: In studying this unit, students will experience first-hand the satisfaction of being able to communicate directly with a remote computer, and indirectly with a person in a remote location. They will become familiar with some of the terminology commonly associated with telecommunication. In addition, students will learn to evaluate some strengths and weaknesses of telecommunication systems.

Goal: To create in students the understanding that telecommunication is the process of transferring data electronically.

Requirements: Modem, communication software, access to a telephone line or wireless communication equipment, and membership in a messaging/database service.

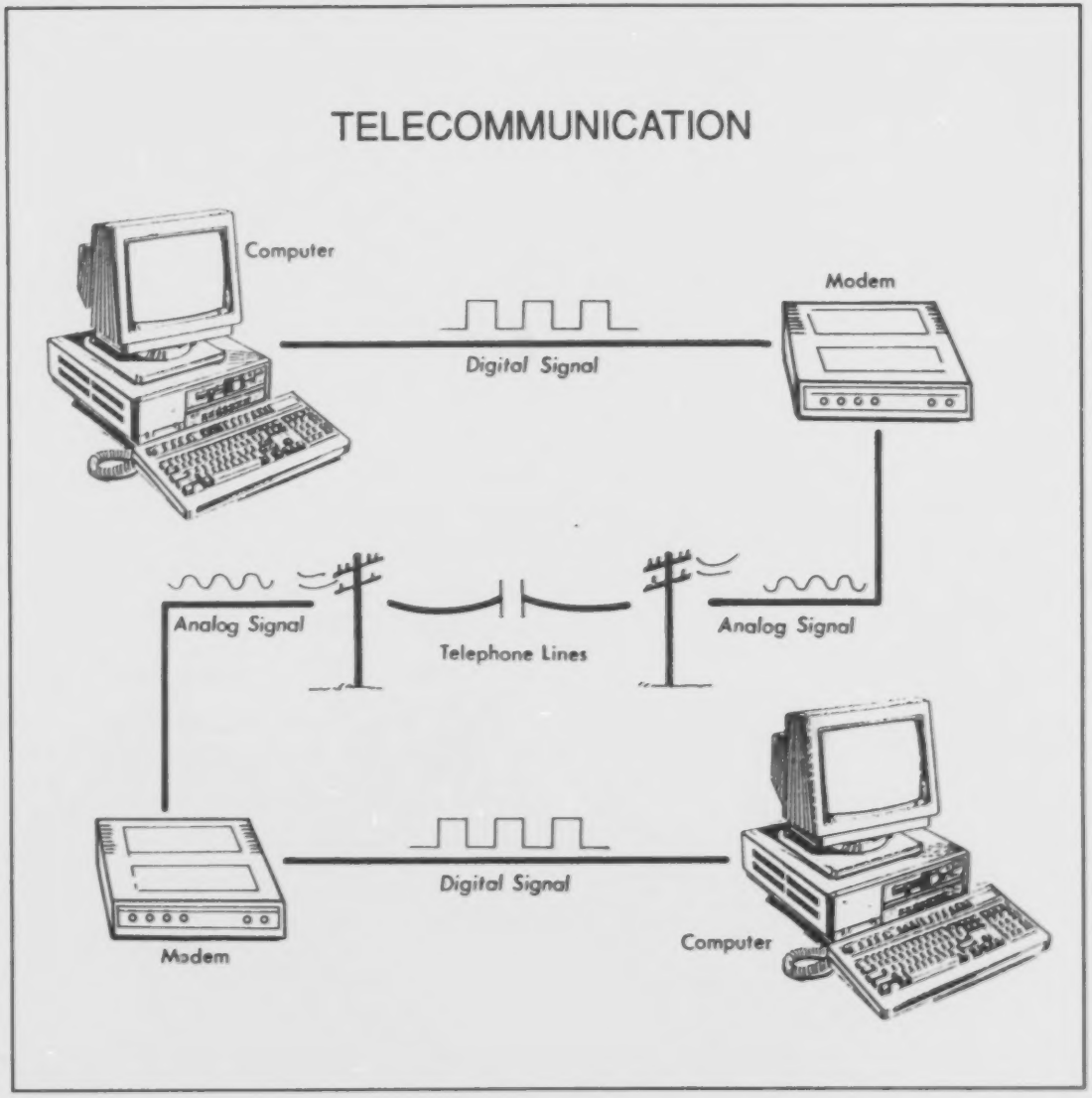
The students should be able to:

1. Recognize the terms commonly associated with telecommunication.

telecommunication - any exchange of information between a source and a receiver using wired or wireless transmission methods. Telecommunication networks may be closed or open; closed networks are usually restricted to a limited group of registered users while open networks are accessible to any caller. Networks may be all wired, all wireless, or a mixture of the two. "Telecommunication" generally refers to radio, television, telegraph, telephone, and digital systems. The telecommunicated information may be generated in one of two common forms: analog and digital.

analog signal - any electrical signal which varies continuously in either amplitude or frequency. Some examples of devices which generate analogue signals are telephones and television broadcast equipment.

digital signal - any electrical signal in the form of a series of discrete quantities which is coded to represent digits. Examples of devices which generate digital signals are computers and facsimile machines.


TELECOMMUNICATION
Computer
Modem
Digital Signal
Analog Signal
Telephone Lines
Analog Signal
Modem
Digital Signal
Computer

distributed network - a network of computer equipment which is geographically distributed. The communication between the various pieces of equipment is accomplished by using another computer as an intermediary. This computer is referred to as the "host."

baud rate - an indication of the speed at which characters can be sent or received. Commonly used rates are 300, 1200, 2400, and 9600 baud.

text file - information consisting only of letters of the alphabet, numbers, and punctuation. A text file does NOT contain any coding information unique to the software used to produce the file, such as format indicators or printing enhancements.

binary file - a collection of information containing coding information unique to the software used to create the file, as well as optional textual information. Such a file is useful only with software capable of understanding those unique codes.

modem - a device which changes the signals sent out by the computer into a form that can be transmitted through a telephone system. A modem (MOdulator-DEModulator) converts digital signals (from computer) into analog signals (telephone system) and vice versa.

E-mail - an abbreviation for electronic mail. The "mail" consists of computer-generated messages delivered between computers connected to local area or distributed networks using wired or wireless transmission.

Activity:

Have students use a word processing program to enter a short formatted document (with centering, margins, underlining, etc.), and have them save the document twice. The first time, have students use the normal "save" command so that the document will be saved as a "binary file"; the second time, have them save it as a "text file." (Different word processing programs use different terminology for these types of files.) Then, using an appropriate editor, students are to display each of the files to show that the text file contains just the text of the document, while the binary file contains coding information unique to the particular word processing program being used.

2. Identify and explain seven uses of telecommunication.

Uses of telecommunication are:

1. **Electronic mail** - a system by which one can send or receive private messages electronically; e.g., Envoy 100, GrassRoots, MINET (Manitoba Information NETwork).

2. **Bulletin board** - a communication system on which one can post messages which can be read by all other users of the system.

3. **On-line databases** - a source of constantly updated information to which subscribers have access. Some examples are: airline schedules, department store catalogues, financial information such as the Toronto Stock Exchange quotes, and complete telecommunication services such as CompuServe and Source.

4. **Linking microcomputers** - By linking a microcomputer to a more powerful computer, the user of the microcomputer may take advantage of the capabilities of the more powerful computer. Microcomputers may also be linked in order to share peripheral devices.

5. **Facsimile transmission (FAX)** - a telecommunication service which permits exchanging paper replicas of purchase orders, office memos, and other forms of correspondence by scanning the original in a facsimile machine and then communicating the scanned image.

6. **File transfers** - the process by which files created on one computer are sent electronically to another computer.

7. **Special applications** - Examples of special applications include electronic funds transfer, on-line video/adventure games, and electronic ordering.

The uses outlined above are examples of computer-to-computer telecommunication and are quite specialized in nature. In a more general sense, telecommunication is an integral part of local area networks, telephone networks, radio and television networks, cable TV networks, and satellite transmissions.

3. List advantages of:

a) electronic mail and bulletin board services;

Advantages of electronic mail and bulletin board services:

- immediate delivery
- reduced expense over paper-based mail (e.g., photocopying, postage, etc.)
- geographic independence
- improved coordination of group tasks (e.g., sending one message to multiple users)
- easy generation of permanent records
- reduced need for "call backs"
- accessibility from any point where a modem connection is available

b) on-line databases;

Advantages of on-line databases:

- access to current and reliable information
- direct access to a wider range of information than would normally be accessible to users (e.g., airline schedules)
- availability of excellent search and retrieval mechanisms, as is the case for most electronic databases

c) linking microcomputers;

Advantages of linking microcomputers to more powerful computers:

- increased speed of execution
- faster disk access
- shareable resources, such as printers, on-line storage devices, and the use of software

d) facsimile transmission;

Advantages of facsimile transmission:

- ease of use
- establishment of a "paper trail"
- permissibility of legal authorization when signatures are required

e) file transfers;

Advantages of file transfers:

- saving of time
- sharing of one copy of the original file information by a number of different users
- guarantee of transmission accuracy of the information through error checking protocols

f) special applications such as banking, on-line video, and electronic ordering.

Advantages of using special applications:

- convenience
- quick access to services and/or information at home or in the office

4. List disadvantages of telecommunication.

Disadvantages of telecommunication:

- high initial cost of equipment
- requirement of specialized knowledge of the specific system being used
- dependence on the communication system
- possibility of a reduced response time due to the rate of transmission and concentrated use of the system
- dependence on the availability and reliability of the hardware required
- ongoing service charges such as telephone and network charges
- sale of network user lists, leading to unsolicited advertising
- loss of image quality in transmission with some communication media

5. Explain the importance of telecommunication standards.

A communication standard allows different types of computers to share textual information. A common computer communication standard is the American Standard Code for Information Interchange (ASCII).

6. Load a communication program.

A communication program is a piece of software which allows the computer to communicate with a remote device. A communication program called MILINK is available from the Educational Technology Program (ETP) of Manitoba Education and Training. This program is available in Apple II, Macintosh, and MS-DOS formats.

7. Successfully log on to a remote computer service.

Before students can use their computer to communicate with a remote computer they must establish a communication link with the remote computer. This is known as logging on. Students will be able to identify a successful log-on when the host computer responds with its log-on information.

Teachers should be aware that only one student may be on-line at a time if there is only one modem and one telephone line in the classroom. Therefore, on-line activities may need to be carried out over an extended period of time.

8. Read, send, print, and delete a message.

Each electronic messaging service has its own operating commands. The teacher will have to inform students of these commands to enable them to accomplish each of the processes set out in the objective.

Where possible and practical, reading, preparation, and printing of messages should be done off-line. This practice will reduce possible user costs. For example, long distance telephone charges will be reduced as the amount of time the computer is connected to the telephone system is reduced. Teachers should refer to the communication software manual for instructions on how to work off-line. Teachers should try to ensure that there is a message waiting for each student who logs on to the school's account for the first time.

Activity 1:

Students can be asked to test the communication line when a regular telephone is attached to the data line. Have students dial the number of the network system and listen for the characteristic high-pitched whine which indicates a computer is present. If the "carrier sound" is heard, students should hang up and continue with the next activity; if it is not heard, they will need to check the hardware and telephone connection and then dial again and confirm that the carrier signal is present before continuing. If a packet-radio circuit is to be used, have students listen to that circuit through the radio's loudspeaker while establishing data contact with the remote system. A good circuit will provide packet-data buzzing sounds when a connection is made.

Activity 2:

Students in the class can be paired with students in another city or town, and then given specific assignments. By asking each other questions, the assigned partners can exchange information about the history, geography, industry, lifestyles, etc. of the area in which they live. The paired students could develop a short survey on a topic such as local recreation activities including such things as curling, snowshoeing, baseball, or horseback riding. Students should survey people in their respective areas, tabulate the results, and telecommunicate these results to their remote partners. Each group should examine the results and determine geographic differences.

Activity 3:

A class that has access to better quality desktop publishing hardware and software than a class at a neighbouring school could receive the text for articles to be included in a school newspaper as electronic messages. Those articles could be produced as camera-ready copy and returned by surface mail or courier to the originator.

9. Successfully log off a remote computer service.

When students have completed their communication session they must terminate the linkage to the remote computer. This is known as logging off. Once the system-specific log-off command is given, a message will indicate that the log-off has been completed.

Enhancements:

10. Create an auto log file.

If permitted by the telecommunication software being used, have students learn to set up and use a "dialing macro," which is a short string of commands automatically followed by the computer and remote system. A dialing macro or auto log file is used to automatically log a caller onto a telecommunication network. Some teachers may prefer to set up a "student dialing disk" with a pre-built and tested auto log file which all students may use.

11. Obtain specified information from an on-line database.

Each on-line database has its own query language. The teacher must inform students of the query language syntax before they will be able to retrieve/display information from the on-line database.

Activity:

Depending on the number and type of databases available, students could play a game of "Trivial Pursuit" over an extended period of time. Each student or pair of students could contribute a question based on information known to be in the databases. Once all the questions have been compiled, the class could be given a reasonable amount of time to find the answers. Prizes could perhaps be given to those with the most correct answers.

12. Upload and download a binary file.

upload - the process of sending a file from a remote microcomputer to a host computer.

download - the process of receiving a file from a host computer.

A file is usually uploaded from or downloaded to the microcomputer's disk drive.

Activity 1:

Teachers can arrange to pair their students with those from a class in another locale, and have each pair work jointly on an assignment. For instance, if both classes are using the same type of computer and the same paint program, one student could draw a scenic background, save the graphic file onto disk, and upload the file to the host. His or her partner in the other class could download the file to the disk, load it into the paint program, add foreground figures to it, save it onto the disk, and upload the modified file. Both students would hand in the same picture to their respective teachers for marking.

Activity 2:

If schools in different locales are all using the same desktop publishing program, they can upload the binary files containing their publications. Each school can download the others' publications and thus exchange information and ideas related to the use of that desktop publishing software. Perhaps each school in the division could upload a single article, with one school being responsible for downloading all the articles, combining them, and producing the divisional newsletter for distribution.

13. Send a letter to several people simultaneously.

Most electronic mail systems allow for mass mailings.

C.I (F): WORD PROCESSING

Introduction: This unit will allow students to utilize the basic aspects of a word processing program. Students will have the opportunity to edit documents, create documents, and familiarize themselves with some of the terminology commonly associated with word processing.

Goal: To create in students the understanding that word processing involves the creation and storage of characters, words, sentences, and paragraphs and that documents are created, edited, and stored using a word processing program.

Requirements: Word processing software, printer, and data disk.

The students should be able to:

1. Recognize the terms commonly associated with word processing.

data disk - a disk used for storing data files.

default settings - alterable settings, entered into a program by its designers, that are satisfactory to users most of the time. Examples are top, bottom, and side margin settings.

delete - the technique of erasing a character, word, sentence, paragraph, or document.

edit - the process of modifying a document.

highlight - a method of emphasizing text, such as displaying it in reverse video.

home key - the key or key combination that returns the cursor to the top left position of the document.

insert - a word processing mode used to move data to the right to make room for new data being entered.

overtype - a word processing mode used to replace existing data with new data being entered from the keyboard.

justified text - text which has the right and left margins evenly aligned.

log - a form used to record and catalogue all documents stored on a data disk.

replace function - a function that automatically/manually substitutes one piece of text for another piece of text.

scroll - the process of moving text vertically or horizontally on the screen in order to display the different parts.

status line - the line at the top or bottom of the screen that sets out information on current page or line, cursor position, etc. Not all word processors have a status line display.

tab stops - alignment points across the page used to create columns and indentations.

transfer/move - the process of moving words, sentences, and paragraphs from one location to another.

wordwrap - the automatic placement of a word on the next line if there is insufficient space on the current line. Wordwrap occurs without pressing the Return/Enter key.

2. Load a word processing program.

Each computer and word processing package requires different loading procedures. Consult the manual for specific instructions.

3. Use the cursor control keys.

Explain the use of the cursor keys for moving around within the document on the screen.

4. Edit a document performing the following tasks:
   a) delete a character, word, sentence, and paragraph;
   b) insert a character, word, sentence, and paragraph;
   c) centre headings;
   d) transfer/move paragraphs.

The teacher could prepare a sample document which requires editing. Load the sample document into the students' computers to give them the opportunity to perform the various editing tasks. See the word processing manual for instructions concerning deletion, insertion, centering, and moving. At the teacher's discretion, the students may be asked to edit a document in which the required changes have been marked using proofreader's marks; however, the proofreader's marks should be limited to those which indicate the basic processes of insertion, deletion, centering, and moving. These marks are shown below as:

- Delete ⸗ Delete
- Insert ^ Insrt
- Centre ctr This is a title
- Move [[Move to left

For reference purposes, a list of commonly used proofreader's marks is included on the following pages.

PROOFREADER'S MARKS

SYMBOL	MEANING	EXAMPLE	CORRECTION
Capitals or Lower Case			
≡	CAPITALS	Department	DEPARTMENT
≡	capitalize	an elmwood student	an Elmwood student
lc	lower case	a Honda Car	a Honda car
Delete or Insert			
ℓ	delete letter	white paper	white paper
~~—ℓ~~	delete word	I am ~~not~~ going	I am going
^	insert	I am home (going)	I am going home
# ^	insert space	sheis happy	she is happy
stet	let it stand	the ~~early~~ snowfall (stet)	the early snowfall
Insert Punctuation			
⸔	apostrophe	the womans coat	the woman's coat
⊙	period	Do not disturb⊙	Do not disturb.
--/	dash	Come today/Friday	Come today—Friday
-/	hyphen	up/to/date	up-to-date
Move			
ctr	centre	Proofreader's Marks (ctr)	Proofreader's Marks
⌣	close up space	They sa w the star.	They saw the star.
5]	indent # spaces	5] You might discover	You might discover

SYMBOL	MEANING	EXAMPLE	CORRECTION
⌋⌊	move right/left	⌋They went together	They went together
⌐¬	move up	E⌐D¬UCATION	EDUCATION
⌊⌋	move down	EDUCATIO⌊N⌋	EDUCATION
tr	transpose	the trucks three	the three trucks
Paragraphs			
¶ *or* P	paragraph	We saw the light.	We saw the light.
Spacing			
SS	single space		single space
DS	double space		double space
TS	triple space		triple space
Spelling			
○	spelling	Mantoiba	Manitoba
Underline			
———	underline	Always proofread	Always proofread

A sample document requiring editing is included below, followed by a copy of the document on which the required changes have been marked using proofreader's marks. An edited copy is also included.

Sample Document (Before Editing)

WORD PROCESSING KEYBOARD

The keyboard is a device. It is connected to the computer system unit by a cord.

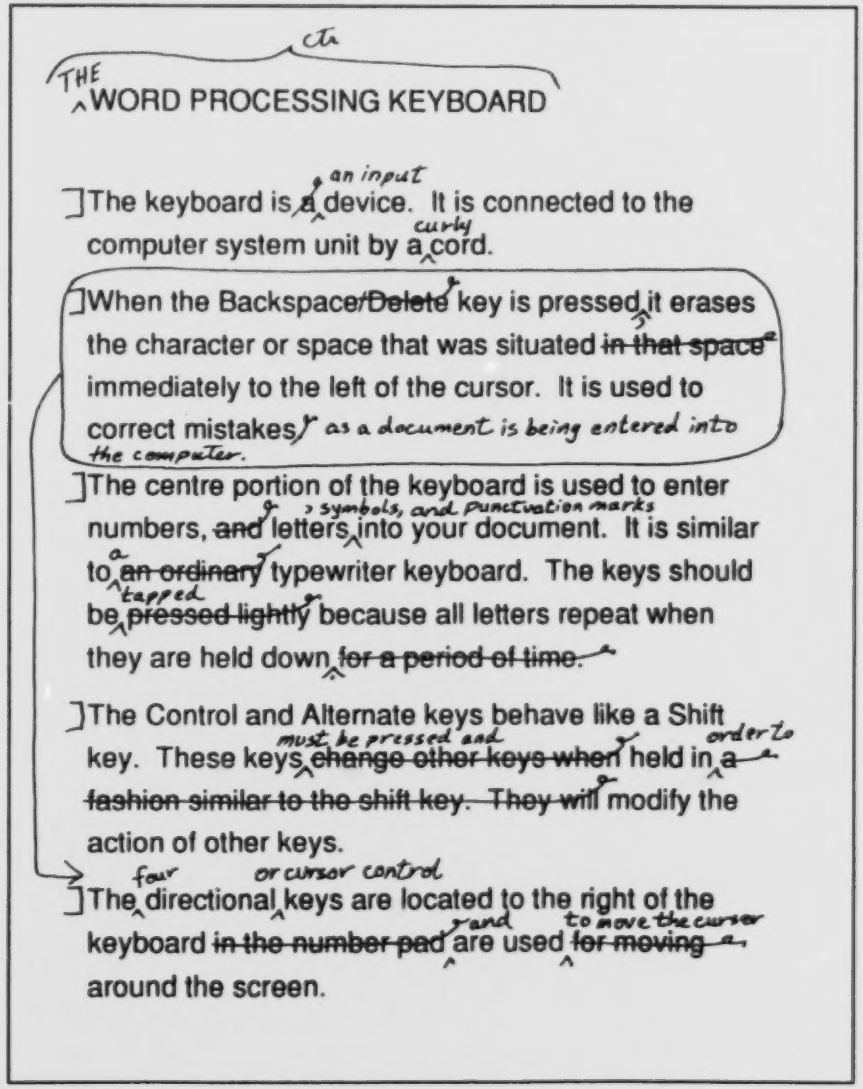
When the Backspace/Delete key is pressed it erases the character or space that was situated in that space immediately to the left of the cursor. It is used to correct mistakes.

The centre portion of the keyboard is used to enter numbers, and letters into your document. It is similar to an ordinary typewriter keyboard. The keys should be pressed lightly because all letters repeat when they are held down for a period of time.

The Control and Alternate keys behave like a Shift key. These keys change other keys when held in a fashion similar to the shift key. They will modify the action of other keys.

The directional keys are located to the right of the keyboard in the number pad are used for moving around the screen.

Sample Document (With Proofreader's Marks)



THE WORD PROCESSING KEYBOARD

The keyboard is a device. It is connected to the computer system unit by a cord.

When the Backspace/Delete key is pressed it erases the character or space that was situated in that space immediately to the left of the cursor. It is used to correct mistakes as a document is being entered into the computer.

The centre portion of the keyboard is used to enter numbers, and letters into your document. It is similar to an ordinary typewriter keyboard. The keys should be pressed lightly because all letters repeat when they are held down for a period of time.

The Control and Alternate keys behave like a Shift key. These keys change other keys when held in a fashion similar to the shift key. They will modify the action of other keys.

The directional keys are located to the right of the keyboard in the number pad are used for moving around the screen.

Sample Document (After Editing)

THE WORD PROCESSING KEYBOARD

The keyboard is an input device. It is connected to the computer system unit by a curly cord.

The centre portion of the keyboard is used to enter numbers, letters, symbols, and punctuation marks into your document. It is similar to a typewriter keyboard. The keys should be tapped because all letters repeat when they are held down.

The Control and Alternate keys behave like a Shift key. These keys must be pressed and held in order to modify the action of other keys.

When the Backspace key is pressed, it erases the character or space that was situated immediately to the left of the cursor. It is used to correct mistakes as a document is being entered into the computer.

The four directional or cursor control keys are located to the right of the keyboard and are used to move the cursor around the screen.

5. **Transfer a document to a disk, which will involve:**

Formatted data disks will be needed for each student. See the word processing manual for instructions on how to prepare the disks.

a) **saving the document;**

Refer to the word processing manual for directions on saving a document. Students should be asked to complete a log sheet when saving documents on a data disk. The log sheet includes information indicating the date of the last revision, the complete name of the document, which disk it is stored on, the type of document, the name under which the document is saved on the disk, and the size of the document. A sample log sheet is shown below.

WORD PROCESSING LOG

* DOCUMENT

L -- Letter
M -- Memo
R -- Report
T -- Table

OPERATOR _____

Date	Document Name/Code	Disk	*Document	Saved as	Line Count
			L M R T		
			L M R T		
			L M R T		
			L M R T		

For very important documents (e.g., essays), a second copy of the document should be made on a different disk, in the event that the original document is damaged or lost.

b) **producing a directory listing of a disk.**

The disk operating system commands are machine-specific and are described in the manuals supplied with the machine. Students should have access to the manuals.

6. Print a document.	Refer to the word processing manual for specific instructions. If printing does not occur on command, consult the printer manual.
7. Remove a file from a data disk.	Refer to the pertinent word processing or DOS manual.
8. Quit a word processing program.	The procedure of quitting the word processing program is an essential step at the end of each class. Each word processing package requires different procedures. Consult the appropriate manual.
9. Replace one character/word with another character/word.	Ask students to replace the periods at the ends of sentences with semicolons. The replace function will be used to perform this task. The students could be asked to print the document. After the periods have been replaced with semicolons, the students could use the replace function to replace the semicolons with periods.
10. Key in a prepared document, which will include: a) setting a number of left tabs; b) underlining words.	Provide each student with a copy of the sample résumé presented on the following page. Have students key in the sample, make spelling corrections, and print the résumé. Tabs may be set at 18, 35, and 48.

RÉSUMÉ

ARNOLD SMITH
723 Chalmers Avenue
Winnipeg, MB
R2L 2B3
(204) 667-9921

Personal

S.I.N.:	555-444-777
Citizenship:	Canadian
Health:	Excellent
Willing to Relocate:	No
Willing to Travel:	No
Hobbies/Interests:	Basketball, Swimming, Drama

Education

Secondary:	Elmwood High School 8 credits 1989
Special Skills:	Keyboarding speed 30 wpm Word Processing - Paperclip - Microworks

Work Experience

1987 - present	Part-time cashier, Tomboy Stores
September 1988	Work education at Stinson Marina

References

Will be supplied on request.

Enhancements:

The following objectives may be pursued to enhance this unit.

Note: Teachers should be aware that the following enhancements may be attempted if time permits and that the enhancements are not compulsory for all students. Time permitting, a student may attempt one or more of the objectives listed as enhancements. Depending upon

	the available hardware/software, it may not be possible to do certain enhancements. For example, if the available printer is not capable of producing subscripts/superscripts, that enhancement should not be attempted.
11. Recognize additional terms associated with word processing.	**header/footer** - text that appears at the top or bottom of every page. This information may be as simple as a page number. **orphan** - the first line of a paragraph that appears as the bottom line of a printed page while the rest of the paragraph appears on the next page. **widow** - the last line of a paragraph appearing by itself at the top of a printed page while the rest of the paragraph is on the preceding page. **subscript** - any number or character that is positioned below the rest of the line. **superscript** - any number or character that is positioned above the rest of the line.
12. Key in an original document.	At this time the students may be given the opportunity to create their own resumés, prepare a cover letter, or do an assignment from another class.
13. Format a document, performing the following tasks: a) set margins — top, bottom, and side; b) set tab stops — right, left, centre, and decimal;	Have students set values in accordance with the word processing program being used.
c) set line spacing;	For example, have students set the line spacing to double and triple spacing.

d) justify text in a document;
e) insert headers and footers;
f) insert page breaks.

An important aspect of the appearance of a document is the location of the stopping and starting points of text on a page, which is controlled by the location of the page break. Page breaks are inserted in documents to give them a pleasing appearance and to improve their readability.

14. Use superscripts and subscripts.

C.II: USING A COMPUTER LANGUAGE (15%)

Introduction: In studying this unit, students will provide the computer with the instructions necessary to perform a specific task. These instructions will be in Logo or BASIC. This unit is important to the students' overall development in that they will gain an appreciation of the amount of work involved in producing computer programs and develop insights into computer system operations. Furthermore, students will come to realize the self-discipline required to work with a computer language, understand that the operation of a computer is not a mystical phenomenon, and develop some of the skills used in a dedicated language within larger application programs. In addition, students will have the opportunity to decide if they have an interest in continuing with further studies in computer programming in the senior years.

Goal: To create in students the understanding that a computer language is used to provide a computer with the instructions necessary to produce specific information and that the process of providing the computer with those instructions is a systematic, ordered activity requiring a high degree of attention to detail.

Requirements: Logo or BASIC software.

Note: The questions presented below along with their solutions are provided to assist the teacher in determining the scope and sequence of the content of this unit. It is the responsibility of the teacher to teach the language syntax required in order to utilize the suggested problems. Depending on student abilities, the teacher may supplement the suggested problems with other problems within the scope of this outline and the 15% time allotment.

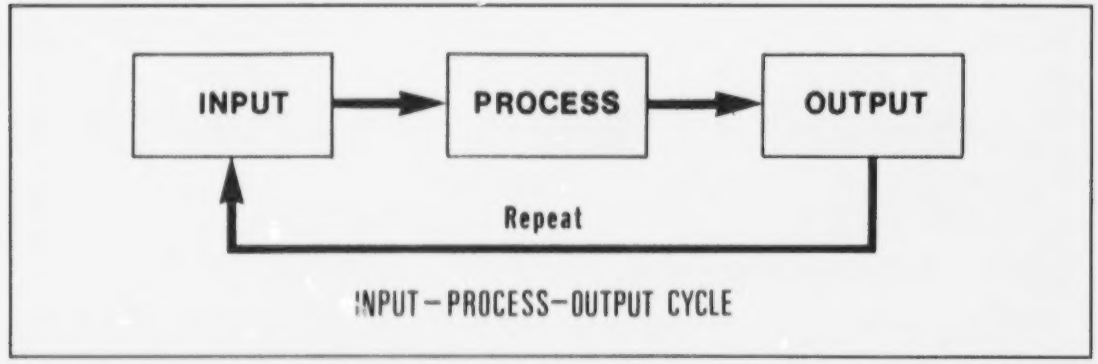
The students should be able to:

1. Solve a problem by separating it into its component parts.

Teachers should stress that the execution of a program usually requires the following steps:

1. **Input** - initial values are given to variables.
2. **Process** - values, based on the information gained during the input phase, are calculated.
3. **Output** - the values of variables, assigned during input and calculated during processing, are printed.

One of the most common errors made by students is not following the input-process-output cycle. Teachers should emphasize that this cycle must be followed in order that programs execute successfully.



INPUT–PROCESS–OUTPUT CYCLE

2. Code the solution to a problem using a computer language.

Teachers may outline problem-solving steps which will assist students in developing a solution to a problem, using a computer language. The students should be made aware that these steps are performed away from the computer, using a pencil and paper.

Step 1: Define the problem by answering the following questions:

- What information is given? (Input)
- What operations must the program perform? (Process)
- What must the program do? (Output)

Step 2: Develop the solution by using a combination of computer recognized terms and English words. This form of the solution is called the "pseudo code." The pseudo code is now examined for any logic errors, such as printing the value of a variable before the value has been calculated in BASIC, or forgetting to move to a new location before beginning another Logo subprocedure.

Step 3: The pseudo code is now converted into the strict syntax of the programming language.

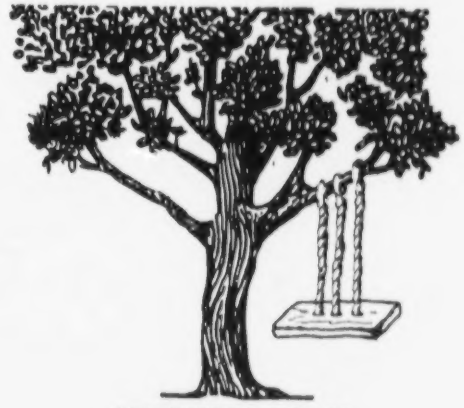
After completing Step 3, the students should enter the completed program into the computer. Teachers should be aware that as students develop greater expertise at problem solving, less time should be spent on paper and pencil activities.

3. Test a program to ensure that it executes correctly, and make any required changes.

Once the program has been entered into the computer it must be executed (RUN) and examined for correct execution. The results (Output) must be examined for accuracy. The teacher may outline for the students some procedures which may be followed to assist in locating the source of a problem causing incorrect results. This process is called "debugging." Some debugging procedures which may be used when teaching BASIC are:

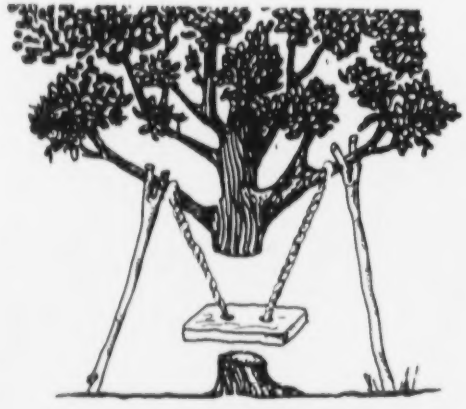
- Use a memory trace to examine the value of a variable to determine how it is affected by the program code.
- Use test data to determine if the program produces the desired results.
- Include additional print statements so that the intermediate value of a variable is displayed.

Attempting to implement a solution to a problem without following a logical process can result in unforeseen difficulties. For example, attempting to design a tree swing without using proper problem-solving techniques can result in what is pictured on the following page:



UNDERSTAND THE PROBLEM

IMPLEMENT A SOLUTION



TEST THE SOLUTION

THE FINISHED PRODUCT

4. Use a peripheral device to:
   a) save a program;
   b) load a program;
   c) print a program listing and output.

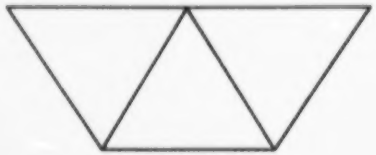
remainder of the notes in this unit consist of a series of sample problems solved by using Logo and BASIC.

Logo Assignments:

1. Using immediate mode create the following figures:

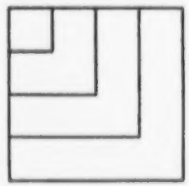
   a) Concepts involved: Drawing a triangle by setting a heading and drawing straight lines.

```
HOME LT 90 FD 30 LT 120 FD 30 LT 120 FD 30
RT 120 FD 30 LT 120 FD 30 LT 120 FD 30
LT 60 FD 30 LT 120 FD 30 HOME
```



   b) Concepts involved: Drawing a square using the REPEAT function.

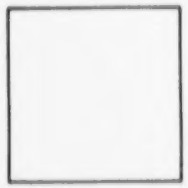
```
REPEAT 4 [ RT 90 FD 20 ]
REPEAT 4 [ RT 90 FD 40 ]
REPEAT 4 [ RT 90 FD 60 ]
REPEAT 4 [ RT 90 FD 80 ]
```



2. Using edit mode create procedures to do the following:

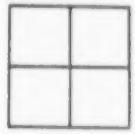
   a) Concepts involved: Definition of a simple procedure.

```
TO BOX
    REPEAT 4 [FD 20 LT 90 ]
END
```



b) Concepts involved: Definition of a super procedure using simple procedures.

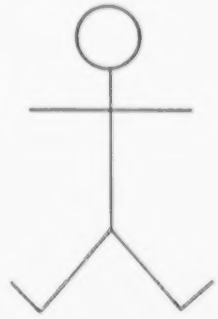
```
TO WINDOW
  REPEAT 4 [ BOX RT 90 ]
END
```



c) Concepts involved: Definition of a super procedure using several procedures.

Note: The solution to this problem uses the LCIRCLE procedure which is defined following the solution to this problem. It is recommended that students be given this procedure and make it part of their primitives by READing it into memory prior to using it. The teacher may also define a procedure called RCIRCLE.

```
TO PERSON
    HEAD
    BODY
    LEFTARM
    RIGHTARM
    RIGHTLEG
    LEFTLEG
    LEFTFOOT
    RIGHTFOOT
END
```



```
TO HEAD
    PU
    SETXY 0 80
    PD
    SETH 90
    LCIRCLE 15
END
```

```
TO RIGHTARM
    SETH 90
    FD 65
    BK 65
END
```

```
TO LEFTFOOT
    SETH 225
    FD 60
    SETH 315
    FD 20
    BK 20
    SETH 225
    BK 60
    SETH 180
END
```

```
TO BODY
      SETH 180
      FD 100
END
```

```
TO LEFTLEG
      SETH 225
      FD 60
      BK 60
      SETH 180
END
```

```
TO RIGHTFOOT
      SETH 135
      FD 60
      SETH 45
      FD 20
      BK 20
      SETH 135
      BK 60
END
```

```
TO LEFTARM
      BK 70
      SETH 270
      FD 65
      BK 65
END
```

```
TO RIGHTLEG
      SETH 180
      FD 70
      SETH 135
      FD 60
      BK 60
      SETH 180
END
```

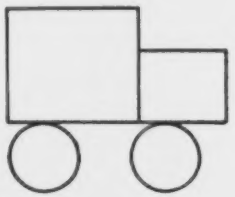
Definition of LCIRCLE

```
TO LCIRCLE :RADIUS
      LARC :RADIUS 360
END

TO LARC :RADIUS :DEGREES
      LEFT 2.5
      LARC1 :RADIUS * 0.0174531 :DEGREES
      RIGHT 2.5
END

TO LARC1 :SIZE :DEGREES
      REPEAT QUOTIENT :DEGREES 5 [ FD :SIZE * 5 LT 50 ]
      CORRECTARCL :SIZE (REMAINDER :DEGREES 10)
END

TO CORRECTARCL :SIZE :AMOUNT
      FD :SIZE * :AMOUNT
      LT :AMOUNT
END
```

3. Procedures with variables:

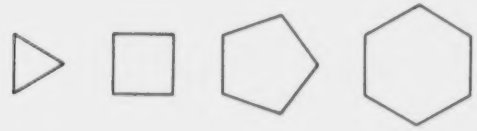
a) Concepts involved: Definition of procedures using variable input.

```
TO TRUCK
      BOX 30
      MOVE.TO.FRONT
      BOX 20
      MOVE.TO.F.WHEEL
      WHEEL
      MOVE.TO.R.WHEEL
      WHEEL
END

TO BOX :SIZE
      REPEAT 4 [ FD :SIZE LT 90 ]
END

TO MOVE.TO.FRONT
      RT 90
      FD 20
      LT 90
 END

TO MOVE.TO.F.WHEEL
      LT 90
      FD 10
END

TO WHEEL
      LCIRCLE 10
END

TO MOVE.TO.R.WHEEL
      FD 30
END
```



b) Concepts involved: Procedure using a calculated variable input.

```
TO POLYGON :SIZE :SIDES
    REPEAT :SIDES [ FD :SIZE RT 360/:SIDES ]
END
```



c) Concepts involved: Drawing circles and setting headings.

```
REPEAT 3 [ LCIRCLE 25 RT 90 FD 20  LT 90 ]
    PU
    RT 180
    FD 20
    RT 90
    FD 48
    RT 90
    PD
REPEAT 2 [ LCIRCLE 25  RT 90 FD 20 LT 90 ]
```

4. Procedures with recursion:

a) Concepts involved: Recursive call of a procedure at the end of the procedure (tail-end recursion).

```
TO TURN.SQUARES :SIZE
    REPEAT 4 [ FD :SIZE RT 90 ]
    RT 45
    TURN.SQUARES :SIZE + 2
END
```

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5. Project:

   Have students create their own figures/design incorporating the procedures with which they are familiar. To ensure the students' success in this project, the teacher should evaluate the students' proposals for appropriateness.

BASIC Assignments:

Teachers may point out to students that although meaningful variable names are desirable, some versions of BASIC only consider the first two characters of each name as unique. Therefore, variable names should be documented in a variable dictionary.

1. Concepts involved: Numeric variables, assignments, simple calculations, and printing with no labels.

   a) Calculate one day's pay, given the number of hours worked and the hourly rate of pay. Print the given values and the calculated values, each on a separate line.

```
10 REM HR = HOURS WORKED BY EMPLOYEE
20 REM RT = EMPLOYEE'S HOURLY RATE IN DOLLARS AND CENTS
30 REM PY = EMPLOYEES'S PAY CALCULATED BY MULTIPLYING
   HOURS WORKED BY HOURLY RATE
100 HR  = 6.5
110 RT = 5.75
120 PY = HR * RT
130 PRINT HR
140 PRINT RT
150 PRINT PY
160 END
```

2. Concepts involved: Assignments, string variables, numeric variables, simple calculations, and printing with labels.

   a) Calculate one week's pay, given the hours worked each day and the hourly rate of pay. Print the employee's name, each day's pay, and the weekly pay. Use labels when printing results.

```
10 REM NA$ = EMPLOYEE'S NAME
20 REM D1, D2, D3, D4, D5 = HOURS WORKED ON EACH OF FIVE DAYS
30 REM RT = HOURLY RATE IN DOLLARS AND CENTS
40 REM P1, P2, P3, P4, P5 = PAY ON EACH OF FIVE DAYS BASED ON HOURLY
   RATE TIMES  HOURS WORKED EACH DAY
50 REM WP = WEEKLY PAY CALCULATED AS THE SUM OF
   EACH OF THE FIVE DAY'S PAY
100  NA$ = "CHUCK BABBAGE"
110  D1 = 6.5
120  D2 = 4.75
130  D3 = 5
140  D4 = 5.5
150  D5 = 6
160  RT = 6.25
170  P1 = D1 * RT
180  P2 = D2 * RT
190  P3 = D3 * RT
200  P4 = D4 * RT
210  P5 = D5 * RT
220  WP = P1 + P2 + P3 + P4 + P5
230  PRINT "EMPLOYEE: "; NA$
240  PRINT "PAY ON DAY ONE: $"; P1
250  PRINT "PAY ON DAY TWO: $"; P2
260  PRINT "PAY ON DAY THREE: $" P3
270  PRINT "PAY ON DAY FOUR: $"; P4
280  PRINT "PAY ON DAY FIVE: $"; P5
290  PRINT "WEEKLY PAY IS $"; WP
300  END
```

3. Concepts involved: Prompted INPUT statement, string variables, numeric variables, simple calculations, and printing with labels.

   a) Calculate the daily pay for two days when the hours worked for each day and the employee's name are given by the user. The hourly rate of pay is given as a constant. Print the daily pay and the employee's name using labels.

```
10 REM RT = EMPLOYEE'S HOURLY RATE IN DOLLARS AND CENTS
20 REM H1, H2 = HOURS WORKED ON DAYS ONE AND TWO
30 REM W1, W2 = WAGES EARNED ON DAYS ONE AND TWO CALCULATED
   BY MULTIPLYING HOURS WORKED BY HOURLY RATE
40 REM NA$ = EMPLOYEE'S NAME
100 RT = 8.45
110 INPUT "ENTER THE EMPLOYEE'S NAME: "; NA$
120 INPUT "ENTER THE HOURS WORKED  ON DAY ONE: " ; H1
130 INPUT "ENTER THE HOURS WORKED ON DAY TWO: " ; H2
140 PRINT "EMPLOYEE: "; NA$
150 W1 = H1 * RT
160 W2 = H2 * RT
170 PRINT "WAGES EARNED ON DAY ONE: $"; W1
180 PRINT "WAGES EARNED ON DAY TWO: $"; W2
190 END
```

4. Concepts involved: Prompted INPUT, IF statement, numeric variables, simple calculations, and printing in columns.

   a) A tax of $50 is payable if the wages exceed $200. In three columns, print hours worked, wages earned, and take-home pay.

```
10 REM HW = HOURS WORKED IN ONE WEEK
20 REM RT = HOURLY RATE IN DOLLARS AND CENTS
30 REM WW = WEEKLY WAGE
40 REM PY = TAKE-HOME PAY
100 INPUT "ENTER HOURS WORKED IN ONE WEEK: "; HW
```

```
110 INPUT "ENTER HOURLY RATE OF PAY: $"; RT
120 WW = HW * RT
130 TX = 50
140 PY = WW
150 IF WW > 200 THEN PY = WW - TX
160 PRINT "HOURS", "WAGE", "TAKE-HOME PAY"
170 PRINT HW, WW, PY
180 END
```

5. Concepts involved: FOR/NEXT loop, prompted INPUT, IF statement, string variables, numeric variables, simple calculations, and printing with labels.

   If the version of BASIC being used permits, loops should be delineated by using indentation.

   a) Determine the take-home pay for five employees. Print the employees' names, hours worked, wage, and take-home pay using labels.

```
10 REM EM = LOOP CONTROL VARIABLE - 5  ITERATIONS
20 REM NA$ = EMPLOYEE'S NAME
30 REM HW = HOURS WORKED IN ONE WEEK
40 REM RT = HOURLY RATE IN DOLLARS AND CENTS
50 REM TX = TAX OF $50
60 REM WW = WEEKLY WAGE CALCULATED AS RATE TIMES HOURS
   WORKED IN ONE WEEK
70 REM PY = TAKE-HOME PAY
100 FOR EM = 1 TO 5
110 INPUT "ENTER EMPLOYEE'S NAME: "; NA$
120 INPUT "ENTER HOURS WORKED IN ONE WEEK: "; HW
130 INPUT "ENTER HOURLY RATE $"; RT
140 PRINT "EMPLOYEE: "; NA$
150 PRINT "HOURS WORKED: "; HW
160 TX = 50
170 WW = HW * RT
180 PY = WW
190 IF WW > 200 THEN PY = WW - TX
200 PRINT "TAKE-HOME PAY $"; PY
210 PRINT
```

```
220 NEXT EM
230 END
```

6. Concepts involved: READ/DATA, assignments, numeric variables, simple calculations, and printing a titled table.

   a) READ the DATA for five employees and calculate take-home pay. The data represents the hours worked by each employee. Print the output in three columns showing hours worked, wage, and take-home pay. Each column should have an appropriate heading.

```
10 REM TX = TAX OF $50
20 REM RT = HOURLY RATE OF $7.45
30 REM EM = LOOP CONTROL VARIABLE - 5 ITERATIONS
40 REM HW = HOURS WORKED - READ FROM DATA STMT
50 REM W = EMPLOYEE'S WAGE - PRODUCT OF HOURS
   WORKED WITH HOURLY RATE
60 REM PY = TAKE-HOME PAY
100 TX = 50
110 RT = 7.45
120 DATA 22, 18, 20, 16.5, 10
130 PRINT "HOURS", "WAGE", "TAKE-HOME PAY"
140 FOR EM = 1 TO 5
150 READ HW
160 W = HW * RT
170 PY = W
180 IF W > 200 THEN PY = W - TX
190 PRINT HW, W, PY
200 NEXT EM
210 END
```

OPTIONS

Op.I: APPLICATIONS AND IMPLICATIONS (up to 10%)

Introduction: Attaining an understanding of the applications and implications of computer technology in society is important. This unit is developed around four conceptual themes and a number of specific applications. The themes are as follows:

Theme 1: Hardware and Software
Theme 2: Privacy and Security
Theme 3: Impact of Computer Technology in the Workplace
Theme 4: Impact of Computer Technology on the Individual

It is expected that students will adequately cover these themes in a minimum of two of the application areas listed below:

- Accounting
- Agriculture
- Artificial Intelligence
- Banking
- Clerical
- Communications
- Creative Arts
- Drafting
- Education
- Engineering
- Government
- Home Use
- Industry/Manufacturing
- Law and Law Enforcement
- Library Science
- Medicine
- Merchandising
- Military
- Recreation
- Robotics
- Security
- Software Engineering
- Space Travel
- Sports
- Transportation
- Weather

Goal: To create an awareness of the applications of computer technology, the implications of its use, and careers associated with the use of computer technology.

Methodology: Teachers may employ one of the following instructional methods:

1. Examine each chosen application area on the basis of the four conceptual themes using the outlined objectives to guide activity. For example, develop Banking as the application area using the objectives outlined for Hardware and Software, Privacy and Security, Impact of Computer Technology in the Workplace, and Impact of Computer Technology on the Individual.

OR

2. Select one conceptual theme and develop its outlined objectives in a minimum of two application areas. For example, choose Privacy and Security as the theme and select two application areas to achieve the specified objectives.

   Theme 1: Hardware and Software - Objective 1

   Theme 2: Privacy and Security - Objectives 2, 3, 4, and 5

   Theme 3: Impact of Computer Technology in the Workplace - Objectives 6, 7, and 8

   Theme 4: Impact of Technology on the Individual - Objectives 9, 10, and 11

   It is advisable to integrate and/or to intersperse work from the Applications and Implications unit throughout the course (e.g., the Privacy and Security theme could be easily integrated when covering the database section).

The students should be able to:

1. Describe the specific hardware and software being used to meet the particular needs of a given application area.

hardware - the physical components of a computer system (boards, monitors, printers, etc.).

software - instructions that tell hardware what to do with data.

Example: Application Area - Merchandising

- Hardware - light pen, scanner, microcomputer with hard drive
- Software - point-of-sale software

Note: Some authors introduce the term "firmware." Firmware is unchangeable software permanently recorded on ROM (Read Only Memory) which is built into the computer. The term "courseware" appears from time to time and it relates to the software and supporting material designed for instructional purposes.

2. Describe ways in which information is collected, stored, and shared by organizations.

Data may be collected from such sources as contest entry forms, credit card applications, subscriptions, birth, death, and marriage announcements, credit bureaus, telephone directories, or the *Henderson Directory*. The collected information is then stored in databases.

Data from these databases may be used internally, sold as mailing lists, or shared among organizations.

More information about the storage of data may be found in the section C.I (A): Database Management.

Activity:

A speaker from an organization may be invited to discuss with students the collection, storage, and sharing of data within the organization.

3. Identify measures used to secure data.

Numerous measures are used to secure data. Three of the most common measures are:

1. **Passwords** - an identification code which gives a user access to a system. Passwords are used in the banking system, the telecommunication system, and local area networks.

2. **Encryption** - the storage of data on a disk in a scrambled form so that if data is accessed with a program other than the authorized one, it appears unintelligible on the screen.

3. **Limited physical access** - machines or doors are unlocked using a key or cardlock.

4. Describe some benefits and misuses of collecting, storing, and sharing data.

The use of data can be viewed positively or negatively.

Discussion could include credit card use, banking machine use, log-on/log-off records, and the problem of control and correctness of information crossing provincial and/or international boundaries.

Each time a person interacts with a computer, a record of that interaction may be left. The user may not be aware of the existence of this record. Technology will also interact with users (e.g., a free Coke coupon may be issued automatically at a point-of-sale terminal whenever a Pepsi product is purchased, or vice versa).

5. Recognize that laws exist which protect an individual's right to privacy of information in Canada.

Discuss the rights of individuals under The Privacy Act (formerly Bill C-43) pertaining to the collection, storage, retrieval, and revision of personal information.

For additional information concerning The Privacy Act contact:

Communications Division
Treasury Board of Canada
20th Floor, Place Bell Canada
160 Elgin Street
Ottawa, ON
K1A OR2
Telephone: (613) 995-6141

6. Identify various tasks or careers which have changed as a result of computer technology.

Changes can be viewed as enhancements, curtailments, or eliminations, depending on the point of view taken. Areas where change has occurred include the following:

- enhancement for office tasks (e.g., word processing, computer accounting, electronic spreadsheets, desktop publishing, and intra-office networking)
- curtailment/elimination of office tasks (e.g., pricing clerks in grocery stores, accounting clerks in department stores)
- enhancement for manufacturing and service industries (e.g., robots on assembly line, computer-aided design, point-of-sale terminals)
- curtailment/elimination for manufacturing and service industries (e.g., because of robots on assembly line, computer-aided design, point-of-sale terminals)

7. Discuss positive and negative effects that computer technology has had on the workplace environment.	Discussion could centre on temperature control, lighting control, RF radiation (radio frequency radiation from computers and their monitors), and ergonomics.
8. Describe possible future trends resulting from the use of computer technology.	Some examples of developing trends: • use of voice recognition systems • increase in cottage industries as a result of telecommunications • use of expert systems resulting from the use of artificial intelligence • decreased human involvement, primarily in manufacturing, as a result of the increased use of robots • automated transportation systems
9. Identify various careers or jobs requiring knowledge of computer technology.	Some sources of career/job information: • Canadian Classification and Dictionary of Occupations - textual information • Canada Job Futures - textual and software information available from Employment and Immigration Canada • software: Insight P.C. Directions Choices
10. Describe the positive and negative impact of computer technology on the individual.	Discussion could centre on job displacement, cottage industries, leisure time, retraining, relocation, unemployment, and physical effects of the use of computers.
11. Understand that occupational goals/ skills may have to be realistically modified as a result of the impact of computer technology.	Many workers have difficulty adjusting to computer use. There is a need to understand automation and to adapt to a machine-oriented environment. By accepting the new technology, understanding automation, and learning new skills, the process of change can be exciting and rewarding.

Students should understand that learning is a life-long process and that entering the world of work is not the end of one's education.

Students must be oriented toward the change process. They must be encouraged to develop problem-solving skills, possess self-discipline, and be able to acquire and apply new knowledge.

Activity 1:

Have students explain the need to be flexible. Discussion could centre on the need to be able to use more than one computer and more than one software package, and the need to complete assignments under timed conditions.

Activity 2:

Assign a media project requiring students to clip five computer-related articles from a local newspaper, highlight the important points in the articles, and write a summary of each article in their own words. As well, have students explain the possible implications of the information found in the articles for themselves or the related field. The summaries must be prepared on the computer using a word processor. The articles are to be attached to the summaries with an indication of the source and the date of publication.

Activity 3:

Provide students with articles which they are to critique.

Activity 4:

Have students pick five or six items representing the application of computer technology such as cash register tapes, bar codes, bank machine codes, magazine address labels, and airline ticket stubs. These are to be handed in for evaluation.

Op.II: CONSUMERISM (up to 10%)

Introduction: This unit will introduce students to some of the major considerations to be taken into account when purchasing hardware or software for personal use.

Goal: To develop in students an awareness of the need to be informed consumers when purchasing a computer system.

The students should be able to:

1. Recognize and understand the terms associated with computer memory.

random access memory (RAM) - the amount of usable memory in the computer.

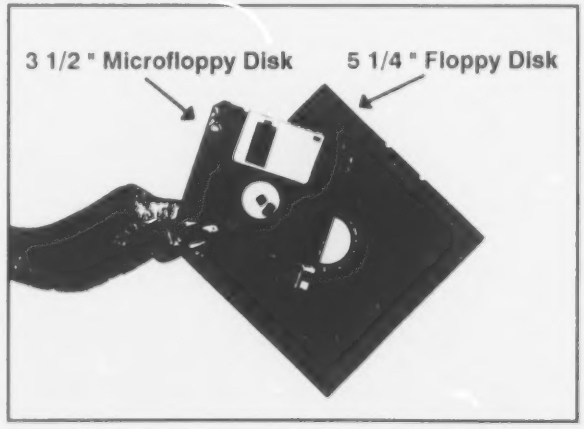
byte - the amount of memory required to store one character.

kilobyte and megabyte - units of measure which indicate an amount of RAM. A kilobyte is generally thought of as a collection of 1000 bytes and a megabyte is generally thought of as a collection of 1,000,000 bytes. The amount of RAM is usually a multiple of kilobytes (64K) or megabytes (1M).

2. Recognize and understand the terms associated with computer storage media.

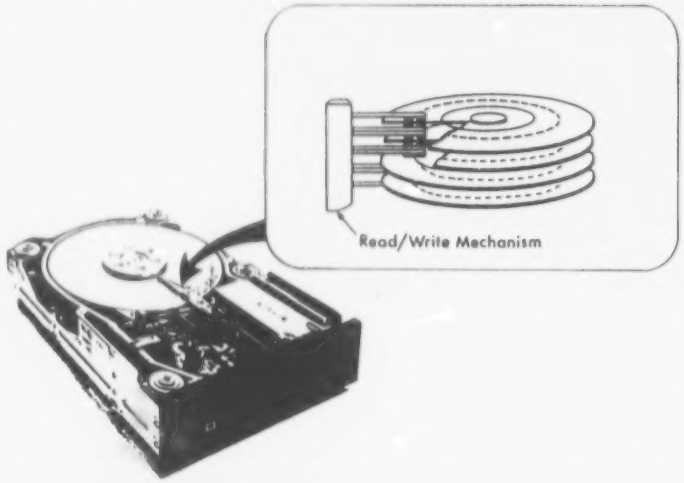
floppy disk - a flexible disk that typically stores between 160 kilobytes and 1.2 megabytes of data. Floppy disks are 5 1/4 and 8 inches in diameter.

microfloppy disk - a disk that typically stores between 360 kilobytes and 1.4 megabytes of data. Standard microfloppy disks are 3 1/2 inches in diameter and are housed in a rigid plastic container with a sliding metal covering, which contributes to their durability.



Both floppy disks and microfloppy disks require a disk drive to be utilized.

hard disk - a rigid metal platter used to store data. Multiple platters are used to achieve storage capacities of 20, 40, 80, or more megabytes. The platters are housed in a sealed device which includes the drive mechanism. This device is called a hard disk drive. Hard disks provide greater speed of access and greater storage capacity than either floppy or microfloppy disks.



compact disk - read only memory (CD-ROM) - a disk which typically stores 550 megabytes of data. This is equivalent to over 1500 floppy disks. A compact disk requires a specialized device, called a CD player, to be utilized. One can only read information from a CD-ROM, not write information on it.

3. Recognize and understand the terms associated with computer monitors.

resolution - refers to the sharpness of the screen image. Resolution is stated by defining the number of horizontal and vertical divisions on the screen. These singular divisions are called pixels (picture elements). Therefore, an image with a resolution of 500 x 300 does not appear as sharp as an image with a resolution of 600 x 400.

monochrome monitor - a single-coloured monitor having shades of either green, amber, white, or grey.

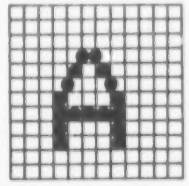
colour monitors:

- **composite colour monitor** - a monitor which receives the three primary colours, red, green, and blue, mixed together as a single input (composite). This type of monitor may have a problem displaying text clearly.
- **RGB monitor** - a monitor which receives three primary colours, red, green, and blue (hence RGB), as individual inputs resulting in a clearer display of text characters and a better colour definition than on a composite colour monitor.

radio frequency modulator (RF modulator) - a device used to connect a computer with a composite video-out to a standard television. This type of connection results in text display which is not as clear on a TV screen as on a computer monitor.

4. Recognize and understand the terms associated with computer printers.

dot matrix printer - an impact printer which uses a series of pins striking a ribbon to form characters which are made up of a series of closely spaced dots. Typically there are between 9 and 24 pins in a vertical line on a print head. The higher the number of pins the better the quality of the printed text.



Dot Matrix Output

near letter quality (NLQ) capability - a print quality provided by some dot matrix printers which approaches the quality of typewritten print.

laser printer - a non-impact printer which uses a process similar to photocopying to form the image. This process results in a much sharper image than that produced by a dot matrix printer.

Laser Output

graphics capability - the ability of a printer to reproduce graphic images. Not all printers have this capability.

print buffer - an area of memory in the printer where the document or information being sent to the printer is stored while printing takes place. This allows the computer to be used for another task while the printing continues. Typically buffers range in size from 4K to 64K.

serial printer - a printer that receives data one bit at a time from the serial port of the computer.

parallel printer - a printer that receives data one byte (8 bits) at a time from the parallel port of the computer.

Note: Be certain that the selected printer can be attached to the computer.

5. Recognize and understand the terms associated with computer interface cards.

interface card - a circuit board that facilitates the connection of a peripheral device to a computer.

video cards - in some cases a specific card is required to connect a monitor to a computer. A variety of video cards can be used for this purpose. Picture quality is dependent upon the card selected.

printer interface cards - in some cases these cards are required to connect a printer to a computer.

serial port cards - in some cases these cards are required to connect an external modem or other serial device to a computer.

6. Evaluate software.

To aid in the software evaluation process, consideration should be given to the following:

- Ease of use.
  Are commands easy to follow and remember?
  Is screen help available, or is help easily found?
  Is the program menu-driven?
  Is the screen layout of the program intuitive? Attractive?

- Reliability.
  How does the program handle unexpected input?

- Associated hardware requirements.
  Does the software require a second disk drive or a hard disk?
  Is convenience facilitated by a second drive?
  Is a printer required?
  Which video cards does the software support? Which type of video cards are required?

- Flexibility.
  Can the software be configured to be used with a variety of different printers, interface cards and monitors?

- Physical contents of software package.
  Be aware of the physical contents of the software package before making a purchasing decision. Software companies vary as to what they include with the purchase price of a piece of software. Backup copies may or may not be included in the package. Documentation varies in the degree to which it explains the use of the package. Certain software packages contain on-disk tutorials. Some packages include a brief one-page document while others include extensive manuals. The procedure used to update to the newest version of the software, when it is available, also varies. There may be a charge for an update.

- Other features.
  Are graphics included in the program? Do they contribute to or detract from the program?
  Can progress be saved in the program, or does the program have to be restarted from the beginning with every usage?
  Does the dealer offer any free support?
  What is the warranty?

- Purchase price.

7. **Identify the sequence of steps that should be taken when purchasing a computer system.**

Step 1:

Identify some possible uses of the computer system. Determining specific uses prior to selecting a computer system will help the user to purchase a system which best meets the anticipated needs.

Step 2:

Identify and evaluate specific software which will allow a computer to be used for the intended use. The user should look at many software packages that will perform the intended uses identified in Step 1. At this point the user still should not determine specific machine type.

Step 3:

Identify all computers on which the selected software can be used. The following factors should be considered:

- Operating system.
  Is a specific operating system required to use the chosen software? Some examples of operating systems are: ProDos, MS-DOS, PC-DOS, TRSDOS, and OS/2. Operating systems may need to be purchased separately from the machine. Will the software work on one specific machine type or can it be used on a number of different machines?

- Minimum memory requirements.
  Are there any minimum memory requirements for the selected software? Most software states the minimum amount of RAM that must be available to run the program.

- Required peripherals.
  Are any peripherals required to complete the system? Is a mouse required? What is the most appropriate type of monitor, drive, and printer for the intended use?

- Flexibility.
  Will the selected hardware allow for the use of other applications (programs) that may be needed at a future date?

- Expansibility.
  Can the original hardware be modified in a way that will accommodate needs as they become more advanced? For example, will the system accommodate the addition of a second monitor, new technologies, or increased amounts of RAM?

Step 4:

After a number of possible computer systems have been considered, it is necessary to decide which system to purchase and where to purchase it. It is important to note that more than one type of computer system may meet the user's specific needs. To help reach a decision on which computer system to purchase, consideration should be given to the following:

- Cost.
  If cost is a factor, there are some disadvantages to purchasing compatible computers and peripherals. Are all the required components included in the purchase price? For example, are the cables and operating system included?

- Where to purchase the computer system.
  The teacher should discuss the pros and cons of mail order buying vs. store buying. The discussion should centre on such things as cost comparisons, availability of service, and availability of support. Should a new or used computer be considered?

- Additional customer support.
  What warranty is included in the purchase price? What is the length of the warranty? How does the customer arrange to have the computer repaired? Is the customer expected to do the initial setup of the computer or is help available from the supplier? To obtain help, is the customer expected to contact the dealer or the original manufacturer? Are there 1-800 support phone numbers available? What is the reputation or reliability of the dealer?

- Other support.
  Is on-line help available for the computer system? On-line help can often be found on bulletin board systems. Is there a support user group?

Activity 1:

Have students find an appropriate computer system for a specific task. The students should be asked to justify their selection of a particular system configuration and software package. Suggested tasks for this assignment might be to identify computer systems and software which can be used for:

- desktop publishing
- scanning graphic and textual data
- managing statistics for a hockey team
- producing personal journals

The following chart should be used in making this decision:

	System 1	System 2
Central Processing Unit (CPU): Manufacturer Model Cost RAM size Memory expandable? Operating System		
Storage: Drive type Drive cost Disk storage capacity		
Monitor: Monochrome? Colour? Composite or RGB? Resolution Cost		
Printer: Manufacturer Type Near letter quality capability? Graphics capability? Buffer size Serial or Parallel? Cost		
Interface cards required? Cost		
Warranty Service contracts Retail outlet		

Activity 2:

Assume that students have made their choice of software packages and a system that will run the packages. Have students find two retail outlets that sell the system and do a comparison on cost, service, availability, etc. to determine the outlet at which the system should be purchased.

Activity 3:

Have students prepare a list of specifications for the hardware in the class lab. Specifications could include make and model number of the computer, RAM capacity, monitor type and resolution, printer type and capability, interface cards needed, etc. Students can obtain this information from hardware manuals.

Activity 4:

Have groups of students or individuals research a software package or computer system and prepare a mock customer/salesperson conversation and present it to the class.

Activity 5:

Invite a salesperson from a local computer retail outlet to speak to the class on the types of equipment and software sold at that outlet. The presentation could include a discussion on pricing.

Activity 6:

Give students an advertisement for a computer system or software and ask them five questions relating to the advertisement. The questions should focus on the terms commonly associated with computer memory, storage media, monitors, printers, and interface cards. In addition, students should be asked questions which involve evaluations of software and hardware. The specifics of each of these areas of questioning can be drawn from the teacher notes for objectives 1 to 7 in this unit.

Op.III: PERSONAL PRODUCTIVITY TOOLS (up to 10%)

Introduction: This unit provides students with the opportunity to explore one or more of the personal productivity tools found in C.I: Personal Productivity Tools.

Goal: To allow students to practice using an additional productivity tool or to extend their knowledge of a productivity tool already studied.

The teacher or the students may:

1. Select a productivity tool in addition to those already studied in C.I: Personal Productivity Tools. Referring to the Core section, the teacher should choose specific objectives to fit the time available.

OR

2. Select one or more productivity tools studied previously in the Core unit. The time spent on any one tool in the Core unit and in this Option unit is not to exceed 15% of the total course time. The teacher should give students an opportunity to extend their use of the tool(s) by completing the enhancement objectives or by providing more extensive exercises which incorporate multiple objectives from the Core unit.

Op.IV: COMPUTER EVOLUTION (up to 10%)

Introduction: When studying this unit, students will become familiar with the development process that computers have undergone to reach their present level of sophistication. Furthermore, students will be made aware of the contributions of a variety of individuals and companies to the development of the present-day computer. Students will be given the opportunity to examine the implications of technological advances and how they relate to today's use of computers.

Goal: To develop in students an understanding of the evolution of computers.

Requirements: Teachers may find it helpful to have available a selection of vacuum tubes, transistors, integrated circuits, and microprocessors.

A kit consisting of various computer parts is available from:

Educational Computer Shop
Route 4, Box 5
Cambridge, MN 55008

Individual electronic components may be purchased locally from:

J. and J. Electronics Ltd.
310 Notre Dame Ave. at Princess St.
Winnipeg, MB R3B 1P4

The students should be able to:

1. Describe the contributions made by various people and companies to the development of modern-day computers.	Teachers may discuss the contributions of some or all of the following people/companies as well as supplement the list with others.

Charles Babbage (1792-1871) developed the analytical engine, composed of a "store" and a "mill." The analytical engine used punch cards as its input medium.

Ada Augusta Lovelace (1815-1852) developed instructions for doing computations on the analytical engine (designed a program to compute Bernoulli numbers). She is credited with being the first programmer. Poet Lord Byron was her father.

Herman Hollerith (1860-1929) used the principle of punched cards to mechanize the census process, and developed the Tabulating Machine Company which, after numerous mergers, became IBM.

John Mauchly and **J. Presper Eckert** developed the ENIAC (Electronic Numerical Integrator And Calculator) which many considered to be the first electronic computer. The ENIAC was first operational in 1946. A challenge was made to the validity of patents on the ENIAC and eventually the patents were declared invalid. The reason for this declaration had to do with the fact that John V. Atanasoff, the developer of the ABC (Atanasoff Berry Computer), was declared the original inventor.

John von Neumann is credited with introducing the stored program concept.

Grace Hopper pioneered the development of the COBOL (COmmon Business Oriented Language) compiler and is credited with being the originator of the term "bug." (Apparently while she was working on the Mark II computer a moth flew into one of the contacts, rendering the machine inoperable, and she exclaimed, "there's a bug in the machine." There are conflicting stories about the use of the term "bug." However, there is some evidence that Thomas Edison used the term to describe little faults and difficulties with some of his inventions.)

John Kemeny is credited with being the developer of the BASIC (Beginner's All-purpose Symbolic Instruction Code) language.

William Shockley is responsible for the development of the transistor. The device was developed at the Bell Laboratories in 1947.

The Eckert-Mauchly Computer Corporation was purchased in 1950 by the Remington Rand Corporation. Their UNIVAC division delivered the firm's first computer, a UNIVAC I, to the United States Census Bureau. The UNIVAC I became well-known to the public when it was used by CBS to predict Eisenhower's victory in the 1952 U.S. presidential election.

Jack Kilby, an employee of Texas Instruments, developed the first working integrated circuit in 1958.

Robert Noyce along with **Jean Hoerni** developed a process to photographically create circuits on a silicon wafer. This process was completed in 1958 at the Fairchild Semiconductor Company.

Steven Jobs and **Steven Wozniak** used the money from the sale of a Volkswagen and a calculator to develop a computer in their vacant garage. They named the computer Apple. This development led to the eventual formation of Apple Computer, Inc.

Don Bricklin and **Bob Frankston** developed the first electronic spreadsheet program in 1979. This program was named VisiCalc. The development of this program is credited with making the microcomputer an accepted tool in business offices.

Mitch Kapor improved on the concept of the VisiCalc program and developed what is today the electronic spreadsheet program, Lotus 1-2-3. The strength of Lotus 1-2-3 was that, in addition to being able to perform the traditional function of an electronic spreadsheet, it could perform database management functions and draw graphical representations of the information contained in the spreadsheet. The development of this program spawned the Lotus Development Corporation.

Other companies of note are: Amdahl, Apple, Control Data, Commodore, Cray, Digital, Hewlett-Packard, Honeywell, IBM, Mind, Tandy, and Unisys.

Activity 1:

Using library resources, students could prepare written and/or desktop video presentations on the people, events, or companies associated with the development of the modern computer.

Activity 2:

Have students decode a message appearing on a punched card. Make certain that the students are aware that this is an example of "old" technology, circa 1970.

Activity 3:

Make a "Trivial Pursuit" type game using the information about the places and the people responsible for developments in computer technology.

Activity 4:

Have students prepare a time line chart of historical events for display on a classroom wall. The students may use a spreadsheet or a database to prepare this time line.

2. Identify the various generations of electronic computers and note their respective characteristics.

First Generation Computers (1951-1959) - computers containing vacuum tubes. These large and bulky computers required much power, generated a lot of heat, and failed very frequently due to the short lifespan of the vacuum tubes. Memory for these machines was very expensive and slow. External memory consisted of magnetic tapes and drums. Input to these computers was done by means of punched cards. The only programming language available was the very cumbersome machine language. Some examples of first generation computers are: EDVAC, Whirlwind, and IBM 700.

Second Generation Computers (1959-1964) - computers containing thousands of transistors. The transistors were hand-mounted on boards and were connected to each other with wires. These computers were smaller, faster, and less expensive than their first-generation counterparts. In addition, they gave off less heat and were more reliable. Some examples of second generation computers are: Philco Transac S-2000, and IBM 1401.

Third Generation Computers (1964-1970) - computers containing integrated circuits in large scale integrated (LSI) format. More complex circuit designs were possible as thousands of circuits could now be etched onto a single chip. These computers were more powerful, less expensive, more reliable, faster, and smaller than their predecessors. A classic example of a third generation computer is the IBM System/360. This generation of computers saw the introduction of the magnetic disk as a storage medium and the introduction of a new size of computer, the minicomputer. A minicomputer, such as a PDP-1, was significantly smaller and less expensive than a mainframe computer.

Fourth Generation Computers (1970-present) - computers containing microprocessors which greatly increased the operating speed of the computer. These microcomputers are capable of running complex software. In addition to containing microprocessors, these machines use a keyboard for data input and a display monitor or printer for data output.

Present research is examining alternate input formats including voice and "paper-like" input. This research may lead to a new "generation" of computers.

Some current technological advances are:

- speech recognition
- use of non-impact printers and ink jet printers
- higher density direct access devices (disk or compact disk drives) at reduced costs
- video disks
- fiber optic laser communication links
- movement of software into firmware
- portable computer units linked to other computers via radio waves
- multiprocessor systems
- high-level "conversational" languages
- increased use of robotics and artificial intelligence/expert systems
- more microprocessor controlled devices
- increased use of local area networks (LANs)

3. Discuss the implications of the speed, cost, reliability, and size of the various generations of computers.

In general, the technological advances as they relate to computers can be summarized as follows:

- computer size has decreased
- computer hardware costs have decreased
- computers have become more reliable
- computer calculations have become faster
- available computer memory has increased
- major costs are shifting from hardware to software

Some specific information system advances are:

- increased use of networking
- greater ease in using software
- faster response times
- greater use of data communications
- increased number of large database systems
- movement towards specialized systems such as electronic funds transfer, electronic mail, and point-of-sale terminals

Activity 1:

Have students view a computer chip contained in an integrated circuit package or other available electronic components under a low power microscope.

Activity 2:

Have students prepare a spreadsheet to produce a graphic representation of the speed, cost, memory size, and physical size of various generations of computers. (Some spreadsheets will produce various graphs or charts.)

4. Recognize/identify uses of the microprocessor in daily life.

Microprocessor applications range from commonly used calculators to timers for microwave ovens, digital watches, traffic signal control devices, and function controllers in automobiles. Due to the significant decrease in price, microprocessors (computers) are used in all walks of life.

Activity 1:

Have students prepare a collage identifying items which utilize microprocessors today.

Activity 2:

Have students prepare a videotape showing items which utilize microprocessors in the home, school, or community.

Op.V: KEYBOARDING (up to 10%)

Introduction: This unit will introduce students to the terms and techniques associated with proper keyboarding. It should be understood that this unit is not a replacement for a touch typing course, but, rather, is introduced solely for the purpose of providing students with some elementary keyboarding skills which will allow them to interact with the computer in a more efficient manner.

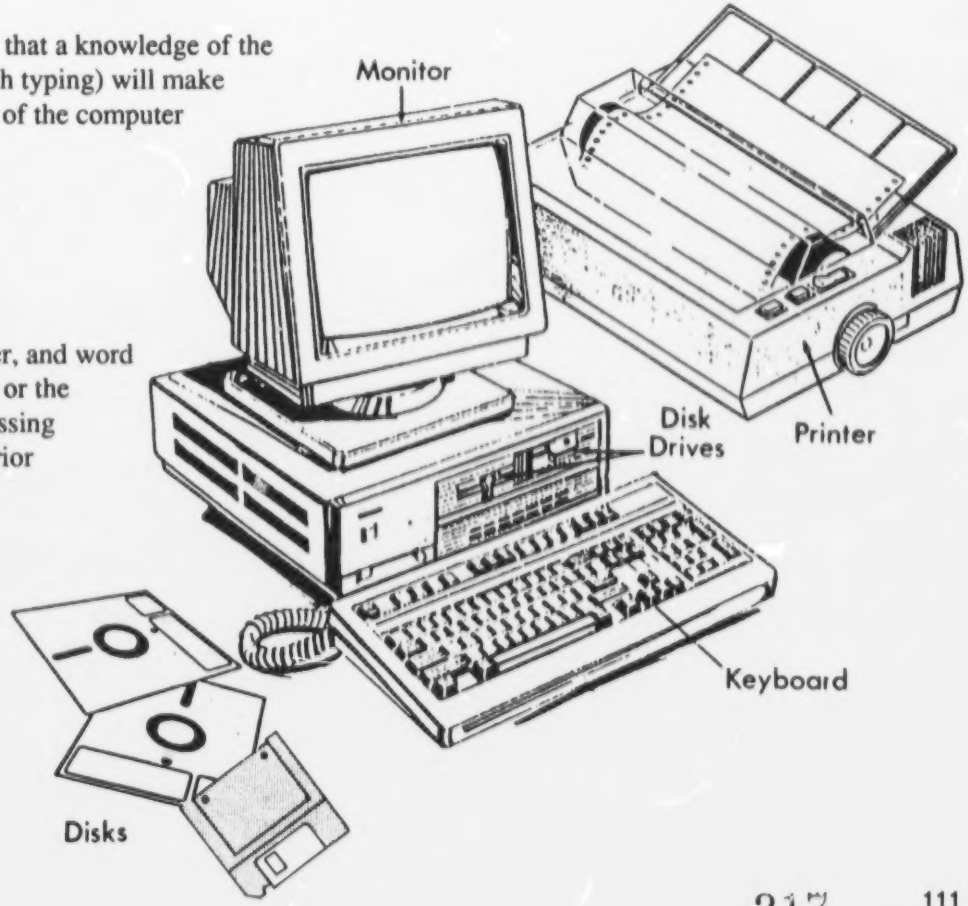
Goal: To create in students the understanding that a knowledge of the proper techniques of keyboarding (touch typing) will make them more efficient and effective users of the computer and its associated software.

Requirements:

1. Electric or manual typewriter.

   OR

2. Computer system, including printer, and word processing program. (The teacher or the students must load the word processing program into computer memory prior to commencing with the lesson.)



The students should be able to :

1. Recognize the terms associated with keyboarding.

touch keyboarding - the process of keeping one's eyes on the material to be copied and operating the letter, number, and punctuation keys using the correct fingering.

home row keys - keys consisting of the characters A S D F J K L ; and when touch keyboarding is being done, the fingers always start on and return to these keys.

home row key positioning - the placement of the fingertips of the left hand on the keys A S D F with the thumb close to the forefinger and the fingertips of the right hand on the keys J K L ; with the thumb extended over the centre of the space bar. The fingers are curled so that the tips lightly touch the keys. The wrists do not touch the keyboard frame.

stroking the key - the process of using a quick, tapping motion when activating a key. This is an important skill as all keys on a computer keyboard are typematic (repeat when held down).

space bar - the key used to place a blank space between characters/words. It is struck with the thumb of either hand.

keyboard - an input device which contains all the letter, punctuation mark, number, and special character keys. The organization of the keys on a computer keyboard is similar to the organization of typewriter keys.

cursor - a blinking symbol appearing on the screen indicating the position of the next character to be typed. The cursor automatically advances as characters are entered.

cursor keypad - the part of the keyboard that contains the four cursor directional keys. The use of these keys will allow the cursor to be moved over existing text without erasing any of the text.

Backspace key - the key that moves the cursor one space to the left and erases the character which is in that space.

Return/Enter key - the key used to indicate the end of a paragraph or to insert blank lines into a document. It may also be used in the completion of a command sequence which is specific to the word processor program being used.

Shift keys - keys used to capitalize letters typed by the left and right hands, print special symbols found on the number keys, and print the alternate characters found on the punctuation keys.

Caps Lock key - the key used to simulate the holding down of the Shift keys when capitalizing. It is used when several capital letters must be keyboarded in succession.

wordwrap - the automatic placement of a complete word or the next line. Wordwrap occurs without pressing the Return/Enter key.

Function keys - special keys, usually labeled F1 through F12, which are used by themselves or in combination with Shift, Alt, or Ctrl keys to carry out the special functions of the word processor being used.

Tab key - the key used to move several spaces at a time using one keystroke. It is used for indenting paragraphs and setting up columns of words or numbers.

2. Demonstrate the procedure of getting the work-station ready.

Note: Before starting to keyboard each day, students should do the following to prepare their work-station:

- Clear the desk of all unnecessary materials.
- Check that the front edge of the keyboard is even with the front edge of the desk.
- Check that the keyboard is directly in front of the chair.
- Place the material to be typed upright to reduce the glare on the paper. (See illustration under objective 3 on the following page.)

3. Demonstrate the correct posture when seated at the keyboard.

The diagram to the right shows the correct keyboarding posture.

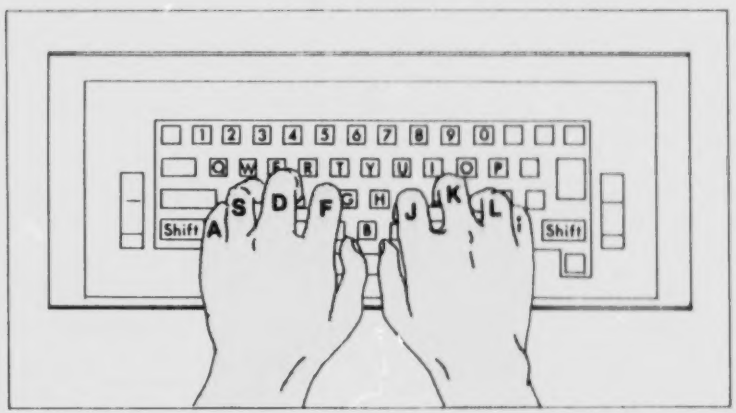
To be seated correctly, one must observe the following:

- the head should be erect, facing the book (copy)
- the eyes should be focused on the copy
- the back should be straight and the body should be leaning forward slightly with the shoulders level
- the body should be positioned a handspan away from the keyboard and centred opposite the J key
- the feet should be apart and firmly braced on the floor, one foot ahead of the other
- the fingers should be curled (as shown in the diagram appearing under objective 4 below).

Correct Keyboarding Posture

4. Demonstrate the correct finger position on the home row keys.

The following diagrams illustrate finger and wrist positioning on the home row keys:



Correct

Incorrect

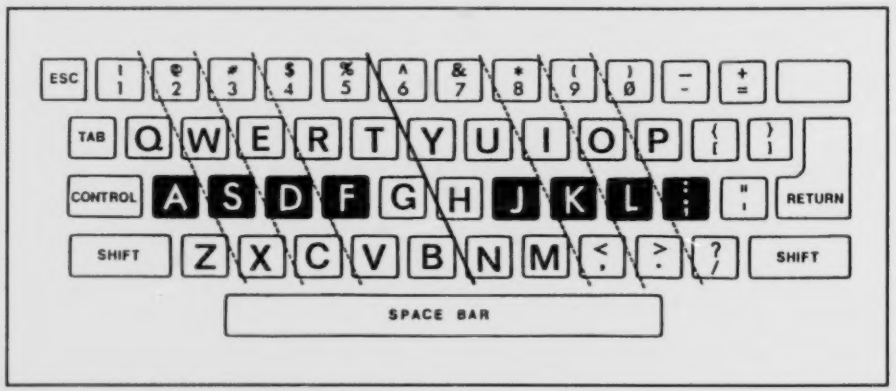
The home row keys (A S D F J K L ;), Space bar, and Return/Enter key must be introduced first. It is recommended that 80 to 100 minutes be spent on the home row keys before introducing any other keys.

A suggestion for demonstrating the correct finger positioning is to use an overhead projector and a transparency of the keyboard to introduce each lesson dealing with finger positioning (see diagram at the end of this unit). This technique will allow students to see exactly how to place their hands on the keyboard, how to stroke the keys, and how to reach for the keys above and below the home row.

5. Demonstrate the correct stroking technique for all characters (letters and punctuation marks) found on the keyboard.

Introduce the remaining letters, keys, and punctuation marks in pairs. A suggested order is:

GU
EH
RI
CN
Left Shift key
T period (.)
VY
Right Shift key
Tab key
BO
XP
WM
Q comma (,)
Z question mark (?)



The home row should always be used as a foundation for introducing the other letters. For example, when introducing the G key, have students practice stroking with the key sequence FGF. Similarly, when introducing the U key, have students practice with the sequence JUJ, and DED when introducing the E key. A diagram indicating the correct fingers to be used for stroking is included above.

6. Demonstrate the correct use of the Left and Right Shift keys.

Use the Left Shift key to capitalize letters keyed in with the right hand. Students should be taught the correct use of this key by using the following three-step sequence of motions:

1. SHIFT! Keeping the F-finger in the home row position, extend the A-finger to press and firmly hold down the Left Shift key.
2. STRIKE! While the Shift key is still depressed, use the right hand to stroke the letter that is to be capitalized.
3. HOME! Release the Shift key and return all fingers to their home row position.

Use the Right Shift key to capitalize the letters keyed in with the left hand. Use the following three-step sequence of motions:

1. SHIFT! Keeping the J-finger in the home row position, extend the semicolon-finger to press and firmly hold down the Right Shift key.
2. STRIKE! While the Shift key is still depressed, use the left hand to stroke the letter that is to be capitalized.
3. HOME! Release the Shift key and return all fingers to their home row position.

7. Demonstrate the correct use of the Tab key.

The Tab key is depressed by using the little finger of the left hand.

8. Demonstrate the correct use of spacing after punctuation marks.

The following is a list of the spacings which follow punctuation marks.

- Space twice after the end of any sentence (.?!).
- Space once after a comma or a semicolon.
- Space once after a period that follows an abbreviation.
- Space twice after a colon.

TRANSPARENCY: FINGER POSITIONING ON A KEYBOARD

Op.VI: NEW TECHNOLOGIES (up to 10%)

Introduction: The intent of this unit is to allow teachers to present students with information not available at the time of the writing of this document. It should be noted that the presentation is to be more than a mere show-and-tell presentation. The intent is to allow students to actually experience whatever new technologies are available to the teacher.

Goal: To provide students with the opportunity to become familiar with new developments in computer technology.

Requirements: Access to hardware or software which can be considered a new technological development.

The students should be able to:

1. Discuss why a "new" technology is thought of as being new.

Note: When studying this unit, students should be exposed to the new technology/development as a hands-on and/or real experience. For example, a real experience would occur if students saw the technology first-hand in its true environment.

It may be that a particular technology/development is new to the school. Examples of relatively new technologies/developments are:

- CD-ROM
- desktop video
- distance education
- hypertext based application
- input device which senses in three dimensions
- interactive television
- interactive use of computer with an external device (e.g., VCR camera)
- modular keyboard
- multimedia presentation
- musical instrument digital interface (MIDI)
- robotics
- scanner

- video disks
- virus detectors/vaccines
- voice-activated devices

2. Identify the uses of a "new" technology and explain its advantages and disadvantages.

The introduction to a new technology could involve a discussion or demonstration by a resource person from the community or a field trip to visit an existing user of that technology/development. For example, students could be given a demonstration of a laser printer. In this case each student could prepare a document for printing on the laser printer in advance. This would allow students to see the difference in the speed and quality of output between different types of printers.

3. Demonstrate the correct use of the "new" technology.

This section may also include a discussion and/or use of newly developed computer software. Depending on the new development, it may be appropriate for the teacher to develop a new unit which involves the new software. The unit's structure should be to set up in a fashion similar to that of the other productivity units in this curriculum.

Op.VII: OPERATING THE SYSTEM (up to 10%)

Depending upon the previous experience of the students enrolled in this course, the teacher will need to cover some or all of this section. While the amount of time spent on this section is optional, the material itself is not.

Introduction: This unit will allow students to become familiar with the operation of the components associated with a computer system. The students will become familiar with the terminology associated with computer systems and be able to identify and correct minor problems which can plague computer systems.

Goal: To create in students the understanding that a computer system is a collection of hardware and software which interacts to form an operational system.

Requirements: Monitor, computer, disk drive(s), printer.

The students should be able to:

1. Operate the following hardware components:
   a) monitor;
   b) keyboard;
   c) printer;
   d) disk drive(s);
   e) local area network (LAN) (if applicable);
   f) other available peripherals (mouse, plotter, etc.).

The operating procedures for each of these components will depend on the specific hardware available. It is suggested that the teacher refer to the owner's manual for information about the safe and correct operation of equipment.

2. Identify common causes of disk damage/failure.

Some causes of disk damage/failure are:

- heat
- cold
- magnetic fields
- condensation
- dust

3. Detect and rectify low-level problems associated with computer hardware.

Low-level problems are those problems that may commonly occur in the computer laboratory. If students learn how to identify and correct low-level hardware problems, they will be able to respond more independently when presented with these problems.

Some common causes of low-level problems are:

- loose interfacing cables
- improperly adjusted contrast/brightness, vertical/horizontal hold, and volume controls on the monitor
- printer controls: on/off switch, tractor/friction feed mechanisms, online (select) switch, paper position, and an out-of-paper situation
- power switched off
- wall plugs controlled by a master switch
  (**Note:** Under no circumstances should students be allowed to repair any electrical outlet.)
- disk drive(s) in which disks have been inserted incorrectly or the drive doors are not properly closed

Activity:

After teaching "trouble-shooting," the teacher can purposely introduce some of the minor problems at random to one machine (e.g., reducing the brightness on the monitor). Students should be expected to solve the problem as they encounter it.

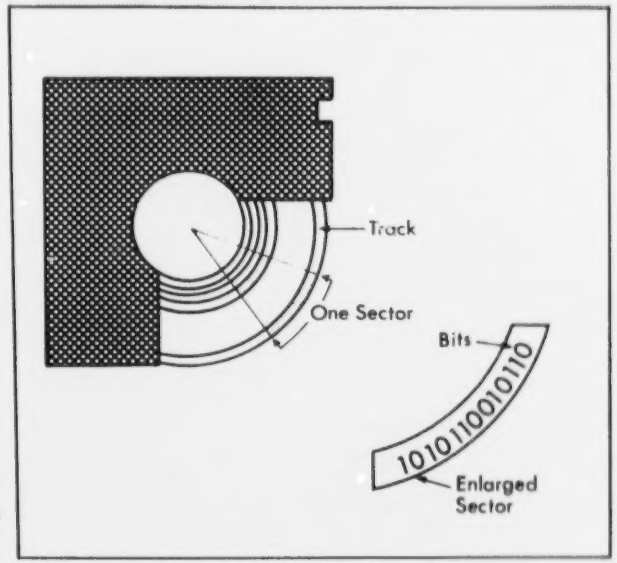
4. Explain the need for:

a) a disk operating system (DOS);

DOS is the acronym for disk operating system. A disk operating system is a collection of programs that direct and aid in the management of the computer's resources. These resources include input and output devices, such as disk drives, keyboards, and printers. The disk operating system also controls the use of the disk drive for the storing and loading of programs and data.

b) preparing a disk for use;

Before any computer can store information on a blank disk, the disk's surface must be organized in a manner that the computer can understand. This organization consists of a system of concentric circles, called tracks, and subdivisions to these tracks, called sectors. Tracks and sectors are mapped onto the disk surface during the disk preparation procedure. Each computer system has its own term for this process. Two of the more commonly used terms associated with this procedure are "formatting" and "initializing." It should be noted that if this mapping-out procedure is used on a disk already containing information, the information will be lost.



c) backup.

Information stored on a disk is stored magnetically; therefore, the information may be corrupted if the magnetic pattern is altered by some external influence. To guard against the loss of magnetically stored data, it is advisable to maintain additional copies of this information. The maintaining of additional copies of disk information is referred to as "backup."

5. Use the appropriate disk operating system commands to:
   a) produce a directory listing of the files contained on disk;
   b) prepare a disk to store data;
   c) copy single files from one disk to another;
   d) create a backup copy of a disk;
   e) remove a file from a disk;
   f) load an application program.

The disk operating system commands are system-specific and are found in the manuals supplied with the system. Students should have access to the manuals.

A disk may be prepared to store data by using a DOS command or a command found in some application software programs (e.g., spreadsheet, database management, word processing).

Note: Be sure that the disk is not write protected.

6. Describe the input/process/output/storage (IPOS) cycle.

All computer systems conform to the IPOS cycle. Data is input and processed; the results are output and stored.

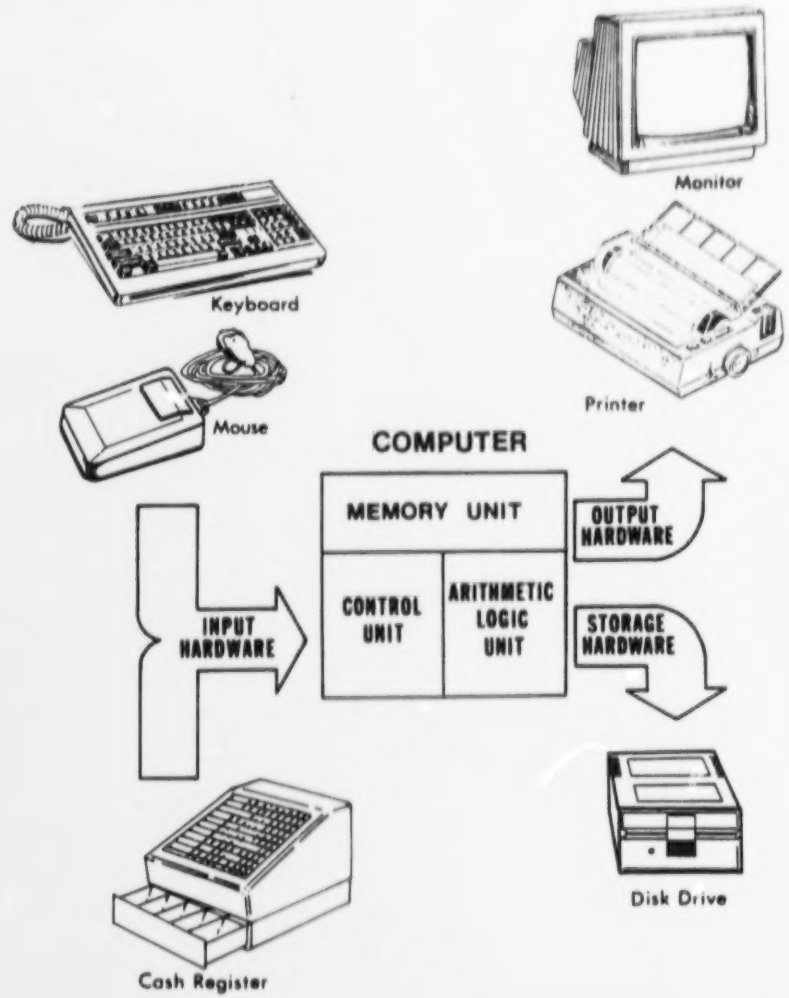
7. Describe the basic components of all computers and give examples where applicable.

The basic components of all computers are:

- input device(s)
- output device(s)
- control unit
- arithmetic-logic unit (ALU)
- memory

An input device is the equipment used to enter information into the computer. Examples include the keyboard, disk/tape drives, scanners, mouse, joy sticks, light pens, optical character readers, voice input devices, CD-ROMs, and video disk players. An output device is the equipment used to receive processed information from the computer. Examples include the monitor screen, printers, plotters, tape/disk drives, voice and music synthesizers, and robotic devices. In addition to containing input and output devices, a computer system has a control unit, which directs the operation of the entire computer system. The arithmetic-logic unit (ALU), which performs calculations and makes comparisons, is a part of the control unit. A memory unit contains read only memory (ROM) and random access memory (RAM).

COMPUTER COMPONENTS



Activity:

Remove the top from a computer in order to show students the component parts.

Note: Unplug the computer first!

8. Understand that data storage and manipulation is accomplished in binary format within the computer.

Values which are stored or manipulated by the computer are dealt with internally as pulses of electricity. The pulse is thought of as being either on (high voltage) or off (low voltage). These pulses are represented in binary code by the digits 1 and 0 respectively.

Activity:

Incorporate some of the following:

- conversion from decimal to binary
- conversion from binary to decimal
- adding in binary
- constructing/interpreting messages using the American Standard Code for Information Interchange (ASCII) or the Extended Binary Coded Decimal Interchange Code (EBCDIC)
- connecting the dots in binary

9. Identify the commonly used types of storage media.

Refer to objective 2 in Op.II: Consumerism for types of storage media.

10. Recognize the terms associated with the electronic storage of information.

bit - the smallest unit of information represented in a computer. A bit can have one of two states, either 0 or 1. The word bit is an acronym for the phrase Binary digIT.

byte - a collection of bits. One usually thinks of a byte as containing eight bits. A byte is used to store one character of information.

ASCII - an acronym for American Standard Code for Information Interchange. The ASCII code is used to store and transmit data electronically.

EBCDIC - an acronym for Extended Binary Coded Decimal Interchange Code. The EBCDIC code is used to store character data on large computers.

ASCII AND EBCDIC FOR SPECIFIC CHARACTERS

Character	ASCII	EBCDIC
0	011 0000	1111 0000
1	011 0001	1111 0001
2	011 0010	1111 0010
3	011 0011	1111 0011
4	011 0100	1111 0100
5	011 0101	1111 0101
6	011 0110	1111 0110
7	011 0111	1111 0111
A	100 0001	1100 0001
B	100 0010	1100 0010
C	100 0011	1100 0011
D	100 0100	1100 0100
E	100 0101	1100 0101

kilobyte (K) - a unit of measurement used to describe the size of computer memory or the size of a file contained in computer memory. Each kilobyte is 1024 (two raised to the tenth power) bytes.

megabyte (M) - a unit of measurement representing 1 048 576 (two raised to the twentieth power) bytes.

gigabyte (G) - a unit of measurement representing 1 073 741 824 (two raised to the thirtieth power) bytes.

11. Explain the advantages and disadvantages associated with using a local area network as compared to using a number of individual microcomputers.

Advantages of using a local area network:

- sharing of peripherals
- sharing of software
- control over remote terminals
- communication between users
- sharing of files

Disadvantages of using a local area network:

- highly trained site administrator required
- high initial cost
- network performance is affected by the number of users

Op.VIII: VIDEOGRAPHY (up to 10%)

Introduction: This unit will allow students to create slide shows and animated computer graphics which may be used for presentations. The presentations can be displayed using a VCR, a computer monitor, or a projection unit such as an overhead palette. An extension of this unit could include an exploration of Desktop Video.

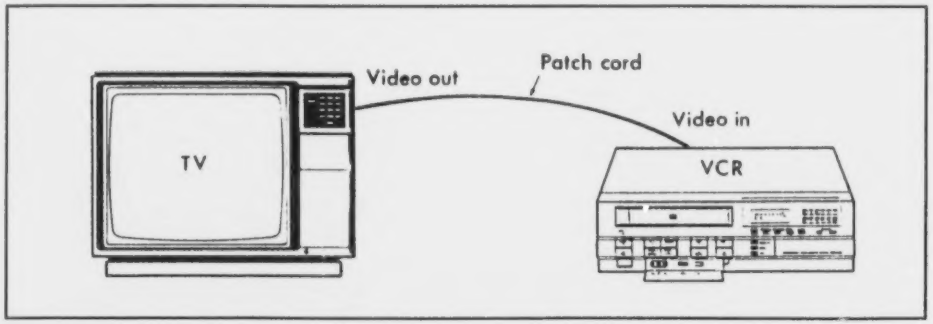
Goal: To create in students the understanding that the computer can be used to prepare video presentations.

Requirements: A presentation or animated graphics software package.
Cables suitable for connecting a VCR to a computer and for connecting a VCR to a television.
A computer possessing an RCA video out port or an RGB to composite converter.

Optional: Colour monitors or hookups to large colour televisions.

Note: Teachers who are considering this unit should check whether the correct connecting cables are available for the computer monitors, computers, and VCR. If the correct cables are not available, teachers should consult with an electronics shop, audio-visual technician, or a fellow staff member who may be familiar with the operation of electronic equipment. Teachers may refer to the diagrams provided for assistance in determining the proper inter-connection between the various electronic components required to teach this unit. It should be noted that the actual location of the hookup ports may vary from one piece of equipment to the next. Teachers should check the operation manual for each specific piece of equipment to determine the actual location of these hookup ports.

It is recommended that students be allowed to record and play back a television image so that they may gain familiarization with the school's VCR and television equipment. (See diagram on the right.)



The students should be able to:

1. Prepare a data disk to store graphic/ textual information.

   The teacher is advised to consult the software manual for instructions on preparing a data disk for storing graphic images. Most current programs allow the user to prepare a data disk by using a command built into the software program. If this is not the case, consult unit Op.VII: Operating the System. Refer specifically to the section on preparing a data disk.

2. Use the computer to create a series of related graphic images or text.

   If the graphics software program permits, a series of images or text may be created and linked directly from within the program.

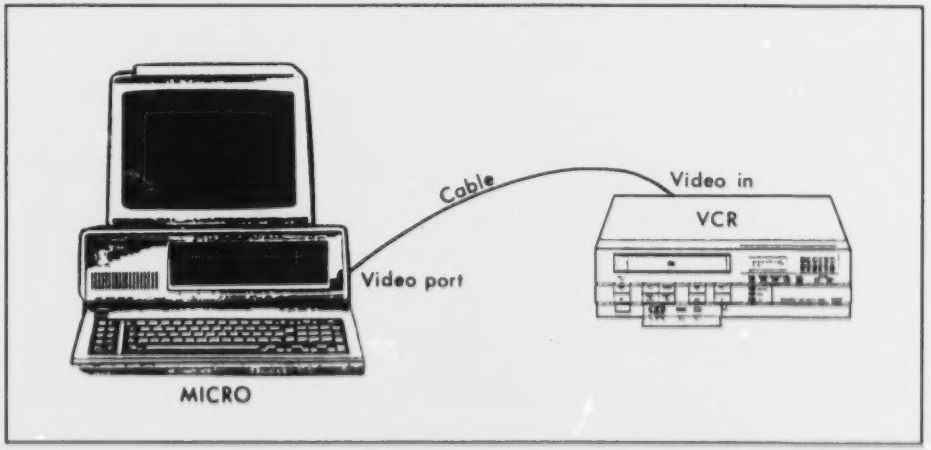
   Note: If students have already completed the graphics component of C.I(C): Graphics, they may use previously generated images here.

3. Save the images or text on the data disk.

   Consult the software manual for instructions on the correct procedure for saving data on a disk.

4. Correctly connect a VCR to a computer.

   Refer to the operation manual and the connection diagram for each piece of equipment. (See diagram below.)



5. Create a slide show or presentat

When creating a slide show or presentation, the elements to be considered include:

- timing
- sequence
- dissolve
- text overlay
- single or multiple display of the complete presentation
- sound/music

Note: The number of elements built into the assignment will determine the time required to complete this objective.

Provide students with definitions of the following terms:

timing - the time between one screen display and the next.

dissolve - the method by which one screen changes into the succeeding screen.

text overlay - the addition of text to video display using a variety of styles, sizes, and colours.

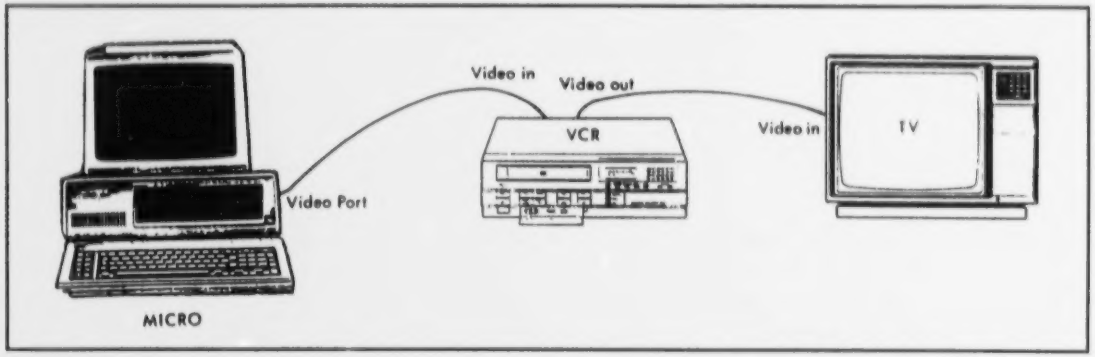
capture - the inclusion of graphics or text from other sources such as Camcorder, other VCR, or TV.

Activity:

Students may be asked to create slide shows or presentations which follow themes from other subject areas. For example, have students prepare a presentation dealing with soil erosion, styles of modern dress, the history of the voyageur, the laws of light transmission, or the distillation process. After completing the formulation of the slide show or presentation, students should save this material on their data disks.

6. Use a VCR to record and play back the output from a computer.

The output to be recorded is the graphic or textual image produced while completing objectives 3 and 5. A special cable called a Y-cable may be required to allow students to see the image on the monitor while it is being recorded on the VCR. If colour computer monitors are not available, the teacher may connect the VCR and computer to a large colour television, in order to display the graphic images in colour. If desired, both a large colour television and a computer monitor may simultaneously broadcast the computer-generated graphic image. (See diagram below.)



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En vigueur le 1er juillet 1991

Bonne nouvelle pour les enseignants!

Il est dorénavant possible de copier, à des fins non lucratives, la plupart des publications, en vertu de l'entente conclue entre Éducation et formation professionnelle Manitoba et le Canadian Reprography Collective (CANCOPY). L'entente en question permet aux enseignants de copier pour des recherches, à titre d'information ou à des fins pédagogiques, récréatives, professionnelles, archivistiques et administratives, différentes publications dans le cadre de leur travail à l'école, ou au sein de leur division ou district scolaire. Les documents audiovisuels ne sont **PAS** compris dans cette entente.

Quel type de documents peut-on copier en vertu de l'entente conclue avec CANCOPY?

L'enseignant est autorisé à copier soit **10 pour cent** d'une publication donnée, soit l'un ou l'autre des documents suivants (le plus grand nombre de pages étant retenu):

- la totalité d'une nouvelle, d'une pièce de théâtre, d'un essai, d'un article, d'un poème ou d'une pièce musicale tirés d'un livre ou d'un périodique contenant d'autre matériel;
- la totalité d'un article ou d'une page tirée d'un journal;
- la totalité d'une définition tirée d'une encyclopédie, d'un dictionnaire, d'une notice bibliographique ou d'un ouvrage de référence similaire;
- la reproduction d'une oeuvre artistique (dessin, peinture, gravure et photographie, ouvrage de sculpture, d'architecture et d'artisanat, etc.), tirée d'un livre ou d'un périodique contenant d'autre matériel;
- tout un chapitre d'un ouvrage;
- certaines pages d'une publication, afin de remplacer les pages endommagées ou manquantes de l'exemplaire appartenant à l'école, à la division ou au district scolaire (si on a fait des efforts pour se procurer un nouvel exemplaire de l'ouvrage en question);
- un exemplaire unique d'un ouvrage rare ou fragile que l'on possède en bibliothèque, pour empêcher sa détérioration;
- un exemplaire unique d'un ouvrage manquant ou endommagé dont l'édition est épuisée, afin de remplacer l'ouvrage faisant partie de la collection de la bibliothèque (si on a fait des efforts pour se procurer un nouvel exemplaire de l'ouvrage en question *et* si CANCOPY en a été informé).

Toutes les copies doivent mentionner le nom de l'auteur, de l'artiste ou de l'illustrateur, ainsi que la source d'où elles ont été tirées.

Qu'en est-il des documents de format non conventionnel?

La reproduction d'ouvrages canadiens et australiens à l'intention d'élèves non voyants, handicapés visuels ou incapables de lire des textes courants en raison d'une déficience physique est autorisée, qu'il s'agisse de bandes sonores ou encore de documents en braille, en gros caractères ou sur disquettes.

Combien d'exemplaires peut-on copier?

- un exemplaire par élève
- deux exemplaires par enseignant
- des exemplaires additionnels pour l'administration et pour la distribution aux parents et dans la collectivité
- un nombre raisonnable d'exemplaires gardés à titre de référence ou pouvant être prêtés par les bibliothèques

NOTE: La Thomson Newspaper Corporation, qui n'est pas membre de CANCOPY, accorde aux enseignants le droit de photocopie gratis et sans restriction, de tous leurs journaux, y compris le Winnipeg Free Press, Brandon Sun et Brandon Today.

Pour obtenir la permission de copier plus d'exemplaires que prévu en vertu de l'entente, il faut d'abord communiquer directement avec le titulaire du droit d'auteur, ou encore avec CANCOPY, à l'adresse suivante:

The Canadian Reprography Collective
379, rue Adelaide ouest, Bureau M1
Toronto (Ontario) M5V 1S5
Téléphone: (416) 366-4768
Télécopieur: (416) 366-6635

Pour en savoir plus long

Pour obtenir de plus amples renseignements, on peut lire la brochure intitulée *Droit d'auteur au Manitoba: ce que l'enseignant doit savoir*, ou encore communiquer avec la Direction des ressources éducatives françaises du ministère de l'Éducation et Formation professionnelle au 945-8554 ou au 1-800-282-8069 (poste 8554).

COPYRIGHT IN MANITOBA

What Teachers Should Know

Manitoba
Education
and Training
Instructional
Resources

Copyright ©1992, the Crown in Right of Manitoba is represented by the Minister of Education and Training. Manitoba Education and Training, Instructional Resources Branch, Box 3, 1181 Portage Avenue, Winnipeg, Manitoba, R3G 0T3.

Permission is hereby granted by the copyright owner for any person to reproduce this document for educational purposes and on a non-profit basis.

Une version en langue française est disponible à la Direction des ressources éducatives françaises, d'Éducation et Formation professionnelle, 200, avenue de la Cathédrale, Saint-Boniface (Manitoba) R2H 0H7.

ISBN 0-7711-1046-4

Winnipeg 1992

1. **How does the Copyright Act affect teachers?**

The Copyright Act prohibits the copying of published material without the consent of the copyright owner. However, it provides for the creation of licencing bodies, such as the Canadian Reprography Collective (CANCOPY), to represent authors and publishers and licence the copying of published materials.

However, under the current Canadian copyright law, there is a list of activities that do not constitute infringements of copyright. Items in the public domain, for instance, may be freely copied. Insubstantial copying is allowed as is fair dealing for the purpose of private study and research.

2. **Why is a licence agreement with CANCOPY necessary?**

Currently, much of the copying that teachers may want to do for their classes is not permitted by the Copyright Act. The licence agreement with CANCOPY allows you to copy most of the material needed for your classes. CANCOPY will use the fee paid for the licence to reimburse authors and publishers for the copying of their material.

3. **How long will the licence agreement with CANCOPY be in effect?**

This first licence agreement between CANCOPY and the Minister of Education and Training, on behalf of all schools in the Province receiving public funds through the Department, covers copying for the period July 1, 1991 through June 30, 1992. At the end of this time it may be extended for a period of up to twelve months. It is expected that a new agreement will be negotiated sometime before the first licence expires.

4. **What may be copied and to what extent?**

Copying may be done for any purpose within the mandate of the educational institution, including instructional, recreational, professional, research, archival, administrative, or communication activities, provided that the copying is not done for profit. The licence allows the copying of either **10 per cent** of a published work or any of the following published materials (whichever is greater):

a) an entire single short story, play, essay, article, poem, or item of print music from a book or a periodical issue containing other works;

b) an entire newspaper article or page;

c) an entire entry from an encyclopedia, dictionary, annotated bibliography, or similar reference work;

d) an entire reproduction of an artistic work (including drawings, paintings, prints, photographs, and works of sculpture, architecture, or artistic craftsmanship) from a book or periodical issue containing other works;

e) an entire chapter of a work.

In accordance with good bibliographic practice, all copies must contain a reference to the author, artist or illustrator, and source of the material.

5. **How much of a work may be copied if the work is rare or fragile, has missing or damaged pages, or is out of print and the library's copy is damaged or missing?**

If a work in the holdings of a library is rare or fragile, the entire work may be copied to prevent the further deterioration of the original. If a work belonging to an educational institution has damaged or missing pages, copies may be made to replace these pages so long as an effort has first been made to secure a replacement copy within a reasonable time and at a reasonable price. If an out-of-print work in the holdings of a library is damaged or missing, a single copy may be made to replace the work so long as an effort has first been made to secure a replacement copy within a reasonable time and at a reasonable price. In this instance, CANCOPY must be notified that a copy has been made.

6. **How many copies may be made?**

One copy may be made for each student, two copies for each teacher, additional copies for administrative purposes (including the communication of information to parents), and a reasonable number of copies for reference in or loan by the library.

7. **Is any material not covered by the licence agreement with CANCOPY?**

The licence agreement covers most of the copying that teachers might do for their classes. There are, however, some categories of material that may not be copied under the terms of the licence.

The licence does not authorize the copying of:

a) published work books, published commercially prepared work cards, published assignment sheets, published tests, and published examination papers;

b) other published materials intended to be "consumable";

c) published materials containing commercially valuable proprietary information, such as newsletters with restricted circulation;

d) originals of artistic works, including photographs or prints;

e) photographic negatives or transparencies;

f) print music published for use by choirs, orchestras, bands, and similar ensembles, and by individual performers;

g) publications that contain a notice expressly prohibiting copying under a licence from a collective or licencing body;

h) unpublished works;

i) any work noted in the Exclusions List.

8. **How will teachers know what is on the exclusions list?**

The document entitled Exclusions List will be near copying equipment at schools and division/district offices. It will be updated regularly so that all teachers will be aware of exactly what materials may not be copied under the terms of the licence with CANCOPY.

9. **Does this mean that none of the works on the exclusions list may be copied under the terms of the licence?**

Yes. The terms of the licence do not authorize teachers to photocopy anything on the exclusions list beyond, of course, that which is permitted by the Copyright Act (e.g., fair dealing or insubstantial use). Teachers must contact the author or the publisher directly to obtain permission to copy the publications that appear on the exclusions list.

10. **Must teachers also adhere to the British and the American exclusions lists?**

Yes. Teachers are permitted to copy most British and American material because CANCOPY has entered into agreements with similar collectives in the United Kingdom and the United States. In order to obtain the right to represent foreign authors and publishers, CANCOPY is required to adhere to the exclusions lists of other collectives. These lists reflect the agreements those collectives have with authors and publishers in their own countries. Therefore, teachers are not permitted to copy works noted in any of the exclusions lists, beyond that which is permitted by the Copyright Act, without the express permission of the copyright owner.

11. **Does the licence permit teachers to copy an entire book over the course of a year?**

No. It does not allow systematic, cumulative copying from the same copyright work or material for one course of study or program.

12. **May teachers copy a selection of works and bind them into an anthology for their classes?**

No. The licence does not permit the permanent binding of a selection of copied works into an anthology.

13. **May teachers enter material into a computer and print out copies for class use?**

Yes. However, the material may not be entered into any form of database to which other users, not covered by the licence, may have access. In addition, the copying guidelines of the licence apply and teachers may not enter more of the work into a computer than the licence permits.

14. **May French language materials be copied?**

CANCOPY has a bilateral agreement with the Quebec Collective, L'Union des écrivains et écrivaines québécois (UNEQ) which permits access to materials in the French language.

15. **May materials published in other countries be copied?**

Since CANCOPY has reciprocal agreements with reprography collectives in other countries, teachers are permitted immediate access to published works in any language of the following countries: the United States, France, Spain, Switizerland, Germany, Iceland, Norway, Australia, and the United Kingdom.

16. **The licence agreement indicates that "consumable" material is not to be copied. What is consumable material?**

A published work is considered to be consumable if the material, after use by one student, is not fit for the same use by other students. Unless otherwise stated, the authors and publishers of this type of material intend that a copy of the material should be purchased for each student.

17. **Why does the licence permit the copying of print music from a non-music book but not music for use by choirs, orchestra, bands, and similar ensembles, and by individual performers?**

A non-music book containing an item of print music is considered to be a book within the terms of the licence agreement with CANCOPY and may, therefore, be copied. Print music for use by choirs, orchestras, bands, and similar ensembles, and by individual performers, whether in sheet music or book form, is not covered by the terms of the licence because it has been expressly forbidden by the copyright owners.

18. **What may happen if teachers copy beyond the terms of the licence?**

Copying beyond the terms of the licence is an infringement of copyright unless the express written permission of CANCOPY or the copyright owner has been received. Teachers copying without such permission may be subject to certain penalties under the law.

19. **Does the licence cover the copying of published works for students who are blind, visually impaired, or otherwise unable to read print because of a disability?**

Yes. Published works may be transcribed into audio, braille, large-print, and machine-readable formats. They are to be used only by students who are blind, visually impaired, or unable to read normal print because of a disability and by teachers involved in educating these students.

All or any part of a work published in Canada or Australia may be transcribed if the work is not on the Exclusions List. The copies must contain a reference to the author, artist or illustrator, and source of the material. The production

of copies may be made for "published work books, published commercially prepared work cards, published assignment sheets, published tests, and published examination papers"; and "other published materials intended to be 'consumable'".

20. **How does CANCOPY distribute the licence fees to authors and publishers?**

The process by which CANCOPY will distribute royalties to authors and publishers has not been finalized.

21. **The licence indicates that sampling surveys will be performed. What are they, and why are they necessary?**

Sampling surveys will help CANCOPY and Manitoba Education and Training to estimate the total number of copies made under the licence. The results of the sampling will assist CANCOPY in allocating remuneration to its member authors and publishers. The results from these sampling surveys may also be used as the basis for negotiating future licences.

22. **Does the licence cover audiovisual material?**

No. It applies only to published print materials. Any copying of audiovisual material, computer software, or any other kind of non-print material without the consent of the copyright owner is prohibited by the Copyright Act.

Audiovisual materials shown in the classroom must carry non-theatrical public performance rights. However, videos rented from local video stores carry home use rights only, which does not permit classroom use. Neither is off-air taping of television programs for classroom use permitted unless prior written approval has been granted by the copyright holder of the program.

23. **Where can teachers obtain additional information?**

All schools and division/district offices have been sent information posters, the Exclusions List, and a copy of the licence agreement.

Further questions about the licence should be directed to the Instructional Resources Branch, Manitoba Education and Training, at 945-7833 / 7823 or 1-800-282-8069 and ask for the appropriate extension.

24. **How do I contact CANCOPY for permission to copy beyond the terms of the licence?**

CANCOPY may be contacted by writing or by fax:

The Canadian Reprography Collective
379 Adelaide Street West, Suite M1
Toronto, Ontario
M5V 1S5
Telephone: (416) 366-4768
FAX: (416) 366-6635

March 1992

Copyright Education Materials Order Form 1992

Manitoba Education and Training
Instructional Resources Library

P.O. Box 3
Main Floor — 1181 Portage Avenue
Winnipeg, Manitoba
R3G 0T3

In Winnipeg: 945-5371
Toll Free: 1-800-282-8069, ext. 5371
FAX: 945-8756

SHIP TO:

Name (please print)

School/Organization

Address

City/Town Postal Code

Please provide a mailing label, if possible, to expedite your order.

Delivery by: ☐ Mail ☐ School Division Courier (Delivery) ☐ In-Person Pick Up at the Library, 1181 Portage Avenue

MATERIALS REQUIRED	QUANTITY
1. Poster, 8½ x 11 -- **Yes you may copy**	
2. Poster, 8½ x 11 -- **You may not copy**	
3. **Exclusions List**	
4. Booklet -- **Copyright in Manitoba: what teachers should know**	
5. **Licence Agreement**	
6. Procedures Memo	
7. Policy Memo	
8. Order forms	

Français au verso

Bon de 1992 visant la commande de documents pédagogiques portant sur le droit d'auteur

Éducation et Formation professionelle Manitoba
Direction des ressources éducatives françaises

200, avenue de la Cathédrale
Winnipeg (Manitoba)
R2H 0H7

Téléphone : 945-8554
Sans frais : 1-800-282-8069, poste 8554
Télécopieur : 945-0092

ADRESSE D'EXPÉDITION

Nom (en lettres moulées)

École - Organisme

Adresse

Ville

Code postal

Veuillez si possible nous fournir une étiquette pré-adressée de manière à nous permettre de traiter votre commande plus rapidement.

Mode de livraison: ☐ Poste ☐ Service de messagerie de la division scolaire ☐ Livraison en mains propres à la Direction des ressources éducatives françaises, 200, avenue de la Cathédrale

DOCUMENTATION COMMANDÉE	QUANTITÉ
1. Affiche de format 8½ x 11 -- **Documents pouvant être copiés**	
2. Affiche de format 8½ x 11 -- **Documents ne pouvant être copiés**	
3. **Répertoire des ouvrages exclus de l'entente**	
4. Livret -- **Droit d'auteur au Manitoba: Ce que l'enseignant doit savoir**	
5. **Convention attributive de licence**	
6. Note sur la procédure	
7. Note sur la politique	
8. Bons de commande	

English on reverse

Manitoba

Éducation et
Formation professionnelle

Bureau de l'Éducation française
Direction des ressources
éducatives françaises

200, avenue de la Cathédrale
St-Boniface (Manitoba) CANADA
R2H 0H7

Téléphone : (204) 945-8594
Télécopieur : (204) 945-0092

Mars 1992

AUX: Directeurs généraux des commissions scolaires
Présidents des commissions scolaires
Secrétaires-trésoriers des commissions scolaires
Directeurs d'école
Coordonnateurs des bibliothèques et des médias

OBJET: **Politiques relatives à l'entente conclue entre le Canadian Reprography Collective et le ministre de l'Éducation et Formation professionnelle concernant la permission de reproduire des documents protégés par le droit d'auteur**

CRÉATION DE SOCIÉTÉS DE GESTION COLLECTIVE

La Loi sur le droit d'auteur (R.S.C. 1985, chapitre C-42 et amendement de 1988) actuellement en vigueur autorise la création de sociétés de gestion collective en vue d'administrer le droit d'auteur au nom de leurs membres. Ces sociétés peuvent émettre des licences qui permettent aux utilisateurs de reproduire des extraits d'ouvrages sous certaines conditions et en contrepartie du paiement de droits. En août 1988, le Canadian Reprography Collective (CANCOPY) a été constitué en société fédérale à but non lucratif. Sont membres de CANCOPY les organismes d'écrivains et les associations d'éditeurs du Canada, des auteurs, illustrateurs et créateurs individuels de publications, ainsi que des éditeurs individuels.

ENTENTE CONCLUE ENTRE CANCOPY ET LE MINISTRE DE L'ÉDUCATION ET DE LE FORMATION PROFESSIONNELLE

Le ministre de l'Éducation et Formation professionnelle et CANCOPY ont conclu une entente qui s'applique à tous les districts et divisions scolaires ainsi qu'aux écoles indépendantes et en aux établissements qui reçoivent un financement public du ministère de l'Éducation et Formation professionnelle. L'entente vise aussi tous les documents de format non conventionnel produits par le Service du matériel spécial de la Direction des soins à l'enfance et du développement des enfants du Ministère, de même que les cours offerts dans le cadre du Programme d'études indépendantes et du Programme de cours donnés par les enseignants de la Direction de l'enseignement à distance et de la technologie du Ministère. L'entente initiale, qui est en vigueur du 1er juillet 1991 au 30 juin 1992, permet la reproduction sans but lucratif de diverses publications aux fins stipulées dans le mandat de tout établissement d'enseignement assujetti à la Loi sur l'administration scolaire. Ces publications peuvent être reproduites et utilisées à des fins pédagogiques, récréatives, professionnelles, archivistiques, administratives ou de recherche associées aux établissements d'enseignement, ainsi qu'à titre d'information pour les parents et la collectivité.

ACCÉS AUX PUBLICATIONS

La signature de l'entente sur le droit d'auteur entre le Canadian Reprography Collective et le ministre de l'Éducation et Formation professionnelle a permis l'adoption d'un mécanisme par lequel les enseignants et les élèves de la maternelle à la 4e année du secondaire bénéficient d'un accès immédiat aux publications protégées par le droit d'auteur. Le Canadian Reprography Collective (CANCOPY) représente les intérêts économiques de quelque 1,5 million d'auteurs et d'éditeurs du Canada, des États-Unis, de la France, de l'Espagne, de la Suisse, de l'Allemagne, de l'Islande, de la Norvège, du Royaume-Uni et de l'Australie ainsi que ceux de la société de gestion collective du Québec, c'est-à-dire l'Union des écrivains et écrivaines québécois (UNEQ).

DÉFINITION DE LA REPRODUCTION

La reproduction est définie comme la production de facsimilés visuellement identifiables de publications au moyen de la photocopie, de la xérographie, de la transmission par télécopieur, de la duplication (à partir d'un stencil), de la micrographie (y compris la production de microfilms et de microfiches), de la micrographie (y compris le traçage) sur acétate ou autre matériel servant à la rétroprojection ou à la projection de diapositives, et de la dactylographie ou du traitement de texte au moyen d'une machine à écrire, d'un ordinateur ou d'une machine de traitement de texte. L'impression offset n'est pas visée par l'entente puisqu'elle se rapporte davantage à l'édition qu'à la reproduction.

DISPOSITIONS DE L'ENTENTE

Les dispositions de l'entente établissent les lignes directrices relatives à la reproduction permise et indiquent les catégories d'ouvrages auxquelles l'entente ne s'applique pas. Elles précisent également les modalités en vue de la production de copies dans des formats non conventionnels (c'est-à-dire sur bandes sonores, en braille, en gros caractères ou sur disquettes) pour les élèves aveugles, malvoyants ou autrement incapables de lire les caractères ordinaires en raison d'un handicap physique. La présente trousse contient un exemplaire de l'entente, qui établit les lignes directrices relatives à la reproduction, précise les interdictions et donne la liste des établissements d'enseignement visés par l'entente.

EXCLUSIONS

Certains éditeurs et auteurs ont indiqué qu'ils ne souhaitaient pas que l'entente s'applique à leurs publications. Aussi, cette dernière ne s'applique pas à leurs ouvrages. Le *Répertoire des ouvrages exclus de l'entente*, que l'on trouve dans la trousse, comprend une liste des éditeurs, des auteurs et des ouvrages qui ne font pas partie de l'entente. Aucune publication inscrite au Répertoire ne peut donc être copiée au-delà des limites d'utilisation équitable et restreinte stipulées dans la Loi sur le droit d'auteur sans la permission expresse du titulaire du droit d'auteur. CANCOPY fera parvenir au ministre de l'Éducation et Formation professionnelle, sur une base régulière, la liste des titulaires de droit d'auteur ayant indiqué qu'ils ne désiraient pas que leurs ouvrages soient copiés en vertu de l'entente. Le ministre fera ensuite parvenir un avis de ces exclusions à toutes les écoles visées par l'entente. Ces avis seront envoyés vers le 15 avril, le 31 août et le 15 décembre et ils entrent en vigueur à la date de leur réception. À l'heure actuelle, les ouvrages canadiens exclus de l'entente comprennent tous les titres de Nelson Canada et tous les ouvrages de Clarence Boon et de Gladys Downes. Les écoles recevront un répertoire général, comprenant tous les ouvrages

américains, britanniques et canadiens exclus de l'entente. Le répertoire devra être conservé près de la photocopieuse ou des autres appareils de reproduction, conformément aux dispositions de l'entente. Les mises à jour doivent y être ajoutées au moment de leur réception.

ACCÉS AUX PUBLICATIONS VISÉES PAR L'ENTENTE

Tous les enseignants et les autres employés doivent connaître les conditions en vertu desquelles il est possible de reproduire les publications. L'enseignant ou l'employé est autorisé à copier soit 10% d'une publication donnée soit l'un ou l'autre des documents suivants (le plus grand nombre de pages étant retenu):

- la totalité d'une nouvelle, d'une pièce de théâtre, d'un essai, d'un article, d'un poème ou d'une pièce musicale tirée d'un livre ou d'un périodique;
- la totalité d'un article ou d'une page tirée d'un journal;
- la totalité d'une définition tirée d'une encyclopédie, d'un dictionnaire ou d'un ouvrage de référence similaire;
- la reproduction d'une oeuvre artistique (dessin, peinture, gravure et photographie, ouvrage de sculpture et d'architecture) tirée d'un livre ou d'un périodique;
- tout un chapitre d'un ouvrage.

L'entente conclue avec CANCOPY ne s'applique qu'aux publications, c'est-à-dire les oeuvres littéraires, dramatiques, artistiques et musicales protégées par le droit d'auteur et dont des exemplaires imprimés ont été diffusés. Ces dernières comprennent notamment les livres, les feuillets, les revues, les journaux et les autres périodiques. Les documents non imprimés, tels les bandes vidéo, les films et les logiciels, ne font pas partie de l'entente.

La reproduction d'exemplaires multiples des imprimés mentionnés ci-dessus est autorisée dans les quantités suivantes: un exemplaire par élève pour ses études, deux exemplaires pour l'enseignant, des exemplaires additionnels pour l'administration, y compris des exemplaires à distribuer aux parents et à la collectivité, ainsi qu'un nombre raisonnable d'exemplaires gardés à titre de référence ou pouvant être prêtés par les bibliothèques.

La reproduction de documents rares ou fragiles à des fins de conservation ainsi que la reproduction de certaines pages manquantes ou endommagées d'un ouvrage et des ouvrages épuisés sont également permises.

Si la reproduction des publications indiquées ci-dessus dépasse le nombre d'exemplaires permis en vertu de l'entente, l'utilisateur doit soumettre une demande écrite d'autorisation (licence ponctuelle), par lettre ou télécopieur, au titulaire du droit d'auteur ou encore à CANCOPY, à l'adresse suivante:

The Canadian Reprography Collective
379, Adelaide ouest, Bureau M1
Toronto (Ontario)
M5V 1S5

Téléphone: (416) 366-4768
Télécopieur: (416) 366-6635

Il est interdit de copier de façon systématique ou cumulative le même ouvrage protégé par le droit d'auteur ou de faire des anthologies à partir de documents qu'on aura copiés puis reliés de façon permanente.

DURÉE DE L'ENTENTE

L'entente initiale est en vigueur pour une période d'un an. Elle pourra être prolongée pour une période maximale de douze mois. On s'attend à ce qu'une nouvelle entente soit négociée d'ici la fin de la période initiale.

OUVRAGES NE FAISANT PAS PARTIE DE L'ENTENTE

L'entente ne s'applique pas à certaines catégories de documents, notamment les ouvrages non encore publiés, les manuels d'instructions et les cahiers d'exercices, les cahiers de musique publiés à l'intention des choeurs, des orchestres et des ensembles musicaux, et les publications contenant un avis interdisant expressément de copier leur contenu. De plus, tel que précisé ci-dessus, certains auteurs et éditeurs ont écrit à CANCOPY afin d'indiquer expressément que leurs ouvrages ne devraient pas faire partie de l'entente.

BANDES SONORES ET VIDÉO, FILMS ET LOGICIELS

L'entente conclue avec CANCOPY ne s'applique qu'aux imprimés. Pour obtenir la permission de reproduire des bandes sonores ou vidéo, des films, de logiciels ou d'autres documents audiovisuels, il faut s'adresser directement au titulaire du droit d'auteur puisque l'entente ne s'applique pas à la reproduction de ces documents.

CONTENU DE LA TROUSSE

En plus du présent énoncé de principes, la trousse contient des documents en français pour les écoles françaises, en anglais pour les écoles anglaises et dans les deux langues pour les écoles d'immersion. Le livret intitulé *Droit d'auteur au Manitoba: Ce que l'enseignant doit savoir* et les affiches que résument les modalités de reproduction permise et interdite font également partie de la trousse. Les affiches doivent être placées dans les locaux où se trouvent les appareils de reproduction. Le livret ci-joint sera distribué à tous les enseignants et à tous les membres du personnel de soutien de la province. On peut obtenir des exemplaires additionnels du livret et des affiches en communiquant avec la Direction des ressources éducatives françaises d'Éducation et Formation professionnelle Manitoba. La trousse contient aussi un exemplaire du texte intégral de l'entente. Pour toute question sur les modalités de l'entente, on peut communiquer avec la Direction des ressources éducatives françaises du ministère de l'Éducation et Formation professionnelle en composant le 945-8554 ou le 1-800-282-8069 (poste 8554). Pour obtenir des exemplaires additionnels de tous les documents inclus dans la trousse, veuillez utiliser le bon de commande ci-joint.

RESPECT DE L'ENTENTE

Toute question ou plainte exprimée par le titulaire d'un droit d'auteur à l'égard d'un enseignant ou d'un directeur d'école et concernant la reproduction illégale de son ouvrage doit être signalée sans délai aux cadres de la division ou du district scolaire et à la Direction des ressources éducatives françaises. On élabore actuellement un protocole qui prévoit des recours contre les enseignants qui contreviendraient aux dispositions de l'entente.

CONCLUSION

L'entente conclue entre CANCOPY et le ministre de l'Éducation et Formation profession-nelle permet de copier des documents protégés par le droit d'auteur selon les quantités requises par la plupart des enseignants dans le cadre de leur travail. On doit obtenir une permission écrite afin de reproduire des extraits d'ouvrages protégés par le droit d'auteur et ne faisant pas partie de l'entente conclue avec CANCOPY ou afin de produire des exemplaires dans des quantités supérieures à celles prévues par l'entente. Veuillez prendre note qu'aux termes de la Loi sur le droit d'auteur, la reproduction d'un document en vue d'une utilisation équitable et restreinte n'est pas interdite par le présente entente.

POUR DE PLUS AMPLES RENSEIGNEMENTS

Veuillez communiquer avec la Direction des ressources éducatives françaises d'Éducation et Formation professionnelle Manitoba en composant le 945-8554 or 1-800-282-8069 (poste 8554).

Manitoba

Éducation et Formation professionnelle

Bureau de l'Éducation française
Direction des ressources éducatives françaises

200, avenue de la Cathédrale
St-Boniface (Manitoba) CANADA
R2H 0H7

Téléphone : (204) 945-8594
Télécopieur : (204) 945-0092

Mars 1992

AUX: Directeurs généraux des commissions scolaires
Présidents des commissions scolaires
Secrétaires-trésoriers des commissions scolaires
Directeurs d'école
Coordonnateurs des bibliothèques et des médias

OBJET: **Procédures relatives à l'application des modalités de l'entente conclue entre le ministre de l'Éducation et Formation professionnelle et CANCOPY**

Vous trouverez dans la présente trousse des documents relatifs à l'entente conclue entre le Canadian Reprography Collective (CANCOPY) et le ministre de l'Éducation et Formation professionnelle au nom des écoles bénéficiant d'un financement du Ministère. Les modalités de l'entente, ainsi que les procédures administratives recommandées, sont précisées ci-dessous.

AFFICHES

Intitulées *Documents pouvant être copiés* et *Documents ne pouvant être copiés*, les affiches ci-jointes doivent être installées sur les photocopieuses et les autres appareils de reprographie, ou dans leur voisinage. On peut les afficher sur un mur au-dessus de la machine ou sur son couvercle. Si les appareils de reprographie se trouvent tous dans la même pièce, il suffit d'installer un seul ensemble d'affiches à un endroit bien en vue dans la pièce. Ces affiches visent un objectif important: indiquer aux personnes qui désirent copier des documents protégés par le droit d'auteur quel type de matériel peut être copié ou non.

ENTENTE CONCLUE AVEC CANCOPY

Le texte complet de l'entente est inclus dans la présente trousse. Il est recommandé d'insérer le document dans une reliure à trois anneaux adéquatement étiquetée, et de placer cette dernière près des appareils de reprographie.

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RÉPERTOIRE DES OEUVRES EXCLUES DE L'ENTENTE

Aux termes de l'entente, le répertoire doit être placé près des appareils de reprographie afin de pouvoir être consulté facilement. Le *Répertoire des oeuvres exclues de l'entente* doit donc être inséré dans la reliure. On peut également y ajouter les mises à jour. Cela est particulièrement important puisque les mises à jour entrent en vigueur au moment de leur réception.

LIVRETS DESTINÉS AUX ENSEIGNANTS

La trousse contient également plusieurs exemplaires du livret intitulé *Droit d'auteur au Manitoba: Ce que l'enseignant doit savoir.* Veuillez distribuer les livrets aux membres du personnel enseignant et du personnel de soutien qui relèvent de votre autorité. Si vous désirez des exemplaires supplémentaires, veuillez utiliser le bon de commande ci-joint. Un exemplaire du livret doit être inséré dans la reliure mentionnée ci-dessus.

BON DE COMMANDE

Les écoles qui désirent obtenir des exemplaires additionnels des documents inclus dans la trousse sont priées d'utiliser le bon de commande ci-joint et de le faire parvenir à la Direction des ressources éducatives françaises du ministère de l'Éducation et Formation professionnelle, 200, avenue Cathédrale, Winnipeg (Manitoba) R2H 0H7 (télécopieur : 945-0092). Veuillez inclure une étiquette préadressée afin d'accélérer l'expédition de votre commande.

RESPECT DE L'ENTENTE

Tout défaut d'offrir un accès au *Répertoire des oeuvres exclues de l'entente* et d'installer les affiches intitulées *Documents pouvant être copiés* et *Documents ne pouvant être copiés* constitue une violation de l'entente et peut entraîner des poursuites judiciaires contre l'établissement d'enseignement.

Le Conseil consultatif sur le droit d'auteur du Ministère élabore actuellement des procédures formelles d'application qui prévoient notamment des recours contre les enseignants qui ne respectent pas les dispositions de l'entente conclue avec CANCOPY.

Le Loi fédérale sur le droit d'auteur protège les droits du créateur d'une oeuvre, soit l'auteur, l'éditeur ou l'artiste. L'entente prévoit un accès immédiat aux ouvrages publiés et selon les besoins les plus courants des enseignants (quantité). Les ententes futures peuvent prévoir des dispositions qui se fondent sur diverses situations et divers taux d'utilisation. Les enseignants doivent respecter la loi et les dispositions de l'entente.

POUR DE PLUS AMPLES RENSEIGNEMENTS

Veuillez communiquer avec la Direction des ressources éducatives françaises du ministère de l'Éducation et Formation professionnelle au 945-8554 ou au 1-800-282-8069 (poste 8554).

CONVENTION ATTRIBUTIVE DE LICENCE CONCERNANT LA REPRODUCTION D'OEUVRES PUBLIÉES

CONVENTION ATTRIBUTIVE DE LICENCE établie en double exemplaire le 1er juillet 1991 entre :

CANADIAN REPROGRAPHY COLLECTIVE
constituée en personne morale sous le régime des lois du Canada
et sise au 379, rue Adelaide Ouest, bureau M1,
à Toronto (Ontario) M5V 1S5

(ci-après appelée la «Collective»)

- et -

LE GOUVERNEMENT DU MANITOBA
représenté par le ministre de l'Éducation et de la Formation professionnelle,
Édifice Robert Fletcher, 1181, avenue du Portage,
à Winnipeg (Manitoba) R3G 0T3

(ci-après appelé le «Manitoba»)

ATTENDU QUE :

la Collective est un organisme de gestion collective du droit d'auteur constituée par des titulaires de droit d'auteur en vue de gérer les droits de reproduction et les autres droits se rapportant à leurs oeuvres publiées;

la présente convention attributive de licence a pour objet de permettre la reproduction d'oeuvres publiées moyennant rémunération pour les titulaires de droit d'auteur et de donner ainsi accès à ces oeuvres, mais non de remplacer la documentation que les utilisateurs devraient normalement acheter;

les parties conviennent que la présente convention attributive de licence n'a pas pour effet de constituer un aveu de la part de l'une ou de l'autre à l'égard de l'application ou du degré d'application d'un moyen de défense ou d'une exemption que lui accorde la Loi sur le droit d'auteur ou tout texte la remplaçant;

les parties conviennent que le montant du paiement prévu aux présentes n'est pas fondé sur une estimation préalable du nombre d'exemplaires tirés par les établissements d'enseignement visés par la présente convention ou sur la valeur des exemplaires en cause;

la Collective est disposée à octroyer une licence de droit d'auteur au Manitoba selon les conditions énoncées ci-dessous.

LES PARTIES CONVIENNENT CE QUI SUIT :

1) **DÉFINITIONS.** Les définitions qui suivent s'appliquent à la présente convention.

Bibliothèque S'entend notamment des centres de documentation, des centres d'apprentissage ou des autres locaux contenant une collection d'oeuvres publiées semblable à celle de ces centres, dans la mesure où ils font partie ou se rattachent à un établissement d'enseignement visé à l'annexe «A».

Établissement d'enseignement Établissement d'enseignement visé à l'annexe «A», laquelle est jointe aux présentes et en fait partie intégrante.

Exemplaires Exemplaires obtenus par reproduction.

Oeuvres publiées Oeuvres littéraires, dramatiques, artistiques ou musicales dont l'ensemble ou des parties sont reproduits dans des exemplaires distribués auprès du public. Sont visés par la présente définition les livres, les feuillets, les magazines, les journaux et les autres périodiques.

Organisme de gestion collective du droit d'auteur Association, organisme ou personne morale autorisé à se livrer à la gestion collective du droit d'auteur pour le compte de titulaires de droit d'auteur à l'égard d'un répertoire d'oeuvres faisant l'objet d'un droit d'auteur. Sont visées par la présente définition les sociétés de gestion au sens de la Loi sur le droit d'auteur, L.R.C. 1985, chapitre C-42, et ses modifications.

Participants Titulaires d'intérêts à l'égard d'oeuvres faisant l'objet d'un droit d'auteur, qui ont accordé des droits de reprographie à la Collective. Sont compris parmi les titulaires en cause les auteurs, les éditeurs ou leur succession ainsi que les organismes représentant des auteurs ou des éditeurs.

Répertoire Oeuvres publiées qui paraissent en tout ou en partie dans des livres, des journaux, des magazines, des revues spécialisées et d'autres périodiques ou publications édités au Canada par des participants ou édités au Canada ou à l'étranger par d'autres titulaires de droit d'auteur, dans les cas où la Collective a passé une convention avec un autre organisme de gestion collective du droit d'auteur ou une autre société de gestion qui l'autorise à représenter ces autres titulaires de droit d'auteur.

Reproduction Tirage d'exemplaires par un procédé quelconque de reproduction.

Reproduction reprographique Tirage d'exemplaires sous forme de facsimilé au moyen de l'un des procédés suivants ou d'un procédé analogue : photocopie, xérographie, télécopie, copie au moyen d'un stencil, microforme (y compris au moyen de microfilm ou de microfiche), transcription ou dessin (y compris le calque) sur une acétate ou un produit autre aux fins de la rétroprojection ou de la projection de diapositives, la dactylographie ou le traitement de textes au moyen d'une machine à écrire, d'un ordinateur ou d'un appareil de traitement de textes.

Titulaire de droit d'auteur La personne investie du pouvoir d'autoriser quiconque à poser des actes en rapport avec une oeuvre faisant l'objet d'un droit d'auteur.

2) PERMISSION

2.01 OCTROI DE LA PERMISSION

i) La Collective autorise le Manitoba, pendant la durée de la présente convention, à procéder à la reproduction reprographique à des fins non lucratives d'oeuvres publiées dans son répertoire, sous réserve des conditions de la présence licence.

ii) Les parties reconnaissent que la Loi sur le droit d'auteur ne s'applique pas aux oeuvres appartenant au domaine public et autorise dans un cadre limité la reproduction d'oeuvres publiées au moyen d'exemptions particulières et de moyens de défense comme l'utilisation équitable d'une oeuvre ou la publication de courts extraits d'une oeuvre.

2.02 **OBJET DE LA REPRODUCTION.** La reproduction reprographique permise doit être faite à des fins relevant de la compétence d'un établissement d'enseignement nommé à l'annexe «A» et régi par la Loi sur l'administration scolaire, lesquelles fins comprennent les activités pédagogiques, récréatives, professionnelles, administratives, de recherche et d'archivage de cet établissement d'enseignement, ainsi que la communication de renseignements aux parents et à la collectivité.

3) LISTE DES EXCLUSIONS

3.01 **OEUVRES EXCLUES DU RÉPERTOIRE.** La Collective est tenue de faire parvenir au Manitoba, dès la passation de la présente convention et au moins une fois par année ultérieurement, une liste indiquant les oeuvres et les catégories d'oeuvres de participants qui sont exclues du répertoire de même que les noms d'autres titulaires de droits d'auteur dans les cas où la Collective a été notifiée par écrit du fait que ces derniers ne désirent pas que leurs oeuvres soient reproduites aux termes d'une licence octroyée par la Collective (l'ensemble des oeuvres et des catégories d'oeuvres en cause sont ci-après collectivement désignées sous le nom de «exclusions»).

3.02 **AVIS DES EXCLUSIONS.** Le Manitoba doit, pendant la durée de la présente convention, faire parvenir aux établissements d'enseignement, les 15 août, 15 décembre et 15 avril de chaque année ou vers ces dates, un avis des exclusions que le Manitoba a reçues de la Collective pendant la période de quatre mois se terminant un mois avant chacune des dates susmentionnées.

4) CONDITIONS DE LA REPRODUCTION AUTORISÉE

4.01 **REPRODUCTION AUTORISÉE.** La présence convention autorise la reproduction soit de 10 % d'une oeuvre publiée, soit des productions énumérées ci-dessous en version intégrale, selon ce qui est le plus long :

i) une nouvelle au complet, une pièce de théâtre au complet, un essai au complet, un article au complet, un poème ou un morceau de musique imprimé au complet, tiré d'un livre ou d'un numéro de périodique (y compris une série de travaux de conférences) contenant d'autres oeuvres;
ii) un article ou une page de journal au complet;
iii) une entrée d'encyclopédie ou de dictionnaire, d'un ouvrage bibliographique annoté ou d'un ouvrage de référence analogue;
iv) une reproduction entière d'une oeuvre artistique (y compris des dessins, des peintures, des estampes, des photographies et des oeuvres de sculpture et d'architecture ou des oeuvres artistiques réalisées par des artisans) tirée d'un livre ou d'un numéro de périodique contenant d'autres oeuvres;
v) un chapitre entier d'une oeuvre.

4.02 **REPRODUCTIONS DE PUBLICATIONS RARES OU FRAGILES.** Une reproduction unique de ces publications peut être faite lorsqu'il s'agit de prévenir la détérioration de publications rares ou fragiles se trouvant en la possession d'une bibliothèque.

4.03 **REPRODUCTION DE PAGES ABÎMÉES OU MANQUANTES.** Des exemplaires en surplus de ceux qui sont permis à l'article 4.01 peuvent être tirés pour remplacer toute page abîmée ou manquante d'une publication appartenant à un établissement d'enseignement. Des efforts raisonnables doivent d'abord être faits pour acheter un nouvel exemplaire dans un délai raisonnable et à un prix abordable.

4.04 **REPRODUCTION D'OEUVRES ÉPUISÉES ABÎMÉES.** Un seul exemplaire d'une oeuvre épuisée, manquante ou abîmée, peut être tiré pour remplacer cette oeuvre dans une bibliothèque. Des efforts raisonnables doivent être faits en premier lieu pour acheter un nouvel exemplaire dans un délai normal et à un prix abordable, et la Collective doit être avisée par écrit du tirage de cet exemplaire.

4.05 **OEUVRES NON VISÉES.** La présence licence ne s'applique pas aux oeuvres suivantes:

i) les oeuvres non publiées;
ii) les cahiers d'exercices publiés, les fiches de travail publiées, les pages de travaux publiées, les tests publiés et les copies d'examens publiées et tout autre matériel publié pour utilisation unique;
iii) le matériel publié contenant des renseignements couverts par des droits de propriété et ayant une valeur sur le plan commercial, tel que des bulletins à tirage limité;
iv) les originaux d'oeuvres artistiques, y compris les photographies ou les estampes;
v) les négatifs de photographies ou autres épreuves (positives), montés ou non;
vi) la musique imprimée qui est publiée pour être utilisée par des choeurs, des orchestres, des fanfares et d'autres formations semblables ainsi que par des solistes;
vii) les publications qui contiennent un avis placé à un endroit bien en vue interdisant expressément la reproduction en vertu d'une licence d'un organisme de gestion collective du droit d'auteur ou d'une société de gestion;
viii) les oeuvres publiées sont inscrites simultanément à la liste des exclusions en vigueur et à l'avis des exclusions visés aux paragraphes 3.01 et 3.02.

4.06 **TIRAGE.** La présente licence autorise le tirage :

i) du nombre d'exemplaires suffisant pour permettre à chaque élève d'avoir un seul exemplaire pour ses études personnelles et à chaque enseignant d'avoir deux exemplaires;
ii) du nombre d'exemplaires nécessaires à des fins administratives, y compris la communication de renseignements aux parents et à la collectivité;
iii) du nombre raisonnable d'exemplaires pour les bibliothèques aux fins de consultation ou de prêt.

4.07 **INTERDICTIONS GÉNÉRALES.**

i) Il ne doit pas y avoir de reproduction systématique et cumulative de la même oeuvre ou de la même documentation faisant l'objet de droits d'auteur pour un programme d'études ou tout autre programme en contravention des limites fixées au paragraphe 4.01.
ii) Les exemplaires reproduits ne doivent pas être reliés de façon permanente pour former des anthologies.
iii) On ne doit pas introduire des oeuvres publiées dans une base de données ou un fichier informatique, ni les en extraire, sauf de la manière permise aux fins de la présente licence et selon ses modalités.

4.08 **MENTION SUR LES EXEMPLAIRES.** Conformément aux règles de la bibliothéconomie, les exemplaires d'oeuvres publiées doivent comprendre, sur au moins une page, une mention de l'auteur, de l'artiste ou de l'illustrateur, ainsi que de la source.

4.09 **DÉPASSEMENT DES LIMITES.** La présente convention ne permet pas les tirages illimités. Pour effectuer des tirages de la documentation publiée en contravention des conditions de la présence licence, il est nécessaire d'obtenir

l'autorisation expresse de la Collective ou du titulaire des droits d'auteur.

5) **TIRAGE D'EXEMPLAIRES À PRÉSENTATION SPÉCIALE**

5.01 **DÉFINITION.** Pour l'application de la présente licence, l'expression «exemplaires à présentation spéciale» s'entend d'oeuvres publiées reproduites sur bande audio, en braille, en gros caractères (par reproduction reprographique) et en caractères lisibles à l'aide d'appareils spéciaux à l'intention des personnes aveugles, handicapées visuelles ou qui ne peuvent lire les caractères imprimés en raison d'un handicap.

5.02 **AUTORISATION.** La Collective autorise, pendant la durée de la présente convention et sous réserve des conditions prévues au présent article, le tirage d'exemplaires à présentation spéciale de l'ensemble ou de parties des oeuvres publiées inscrites au répertoire, à l'exception des oeuvres non publiées au Canada ou en Australie. Le répertoire ne comprend pas les oeuvres qui sont simultanément inscrites à la liste des exclusions en vigueur et à l'avis des exclusions prévues aux paragraphes 3.01 et 3.02. Pour l'application de l'article 5 seulement, le champ de l'autorisation est étendu pour s'appliquer à la documentation visée à l'alinéa 4.05 ii).

5.03 **OBJET DE LA REPRODUCTION.** La reproduction permise doit être faite à des fins relevant de la compétence d'un établissement d'enseignement nommé à l'annexe «A» et régi par la Loi sur l'administration scolaire, lesquelles fins comprennent les activités pédagogiques, récréatives, professionnelles, administratives, de recherche et d'archivage de cet établissement d'enseignement, ainsi que la communication de renseignements aux parents et à la collectivité. L'emploi des exemplaires à présentation spéciale est réservé aux personnes aveugles, handicapées visuelles ou qui ne peuvent lire les caractères imprimés en raison de leur handicap et aux personnes chargées de leur formation.

5.04 **MODIFICATIONS.** Les exemplaires à présentation spéciale de l'ensemble ou de parties d'une oeuvre publiée ne doivent comporter aucune modification par rapport à l'oeuvre originale, à l'exception de celles qui sont raisonnablement nécessaires en raison des exigences posées par le mode de présentation spéciale utilisé.

5.05 **MENTION SUR LES EXEMPLAIRES À PRÉSENTATION SPÉCIALE.** Conformément aux règles de la bibliothéconomie, les exemplaires à présentation spéciale d'oeuvres publiées doivent comprendre une mention de l'auteur, de l'artiste ou de l'illustrateur, ainsi que de la source.

5.06 **INVENTAIRE DES EXEMPLAIRES À PRÉSENTATION SPÉCIALE.** Le Manitoba tient un inventaire complet des titres produits sous forme spéciale au cours de chaque année civile pendant la durée de la présente convention et fait parvenir copie de l'inventaire ainsi qu'un rapport à la Collective dans un délai de deux mois après la fin de chacune des années civiles en cause. Le rapport indique, pour chacun des titres, le nom de l'éditeur et de l'auteur des oeuvres publiées reproduites sous forme d'exemplaires à présentation spéciale, le type de présentation spéciale utilisé et le nombre d'exemplaires tirés sous chacune des formes de présentation spéciale. Il est convenu qu'aucun des renseignements contenus dans la liste et le rapport en cause ne seront utilisés directement ou indirectement en rapport avec des actions ou des réclamations concernant la violation du droit d'auteur ou la violation de tout autre droit, que ce soit pendant ou après la durée de la présente convention.

5.07 **VENTE AU PRIX COÛTANT.** Les exemplaires à présentation spéciale peuvent uniquement être vendus au prix coûtant.

5.08 **ACCÈS POUR LES TITULAIRES DE DROIT D'AUTEUR.** À la demande d'un participant dont l'oeuvre a été produite sous forme de bande audio, l'établissement d'enseignement qui possède l'original de la bande audio est tenu d'en fournir un exemplaire au participant en cause.

6) **PAIEMENT.** En contrepartie de la permission accordée aux présentes, le Manitoba s'engage à payer un droit de licence s'élevant à DEUX CENT MILLE DOLLARS (200 000 $) à la Collective au plus tard le 1er novembre 1991 en vue de couvrir la reproduction accomplie au cours des douze mois qui suivent la date d'entrée en vigueur (indiquée au paragraphe 7.01) de la présente convention.

7) **DURÉE DE LA LICENCE**

7.01 **DATE D'ENTRÉE EN VIGUEUR ET DURÉE DE LA LICENCE.** La durée initiale de la présente licence s'étend du 1er juillet 1991 au 30 juin 1992.

7.02 **PROROGATION D'OFFICE.** La présente licence est prorogée d'office pour des délais de trois mois (ci-après appelés «délais de prorogation»), sous réserve des conditions qui suivent. Au plus tard 90 jours avant la fin de la durée initiale ou d'un délai de prorogation, l'une des parties peut donner avis à l'autre du fait qu'elle désire renégocier l'ensemble ou une partie des conditions de la présente licence et, en pareil cas, la licence est résiliée à la fin de la durée initiale ou du délai de prorogation en cours, selon le cas, à moins que les parties ne conviennent de nouvelles conditions auparavant. Le droit de licence applicable à chacun des délais de prorogation s'élève à CINQUANTE MILLE DOLLARS (50 000 $) et doit être versé le premier jour du délai en cause.

8) **ÉCHANTILLONNAGE.** Les parties conviennent d'établir un protocole d'échantillonnage afin d'évaluer le nombre total d'exemplaires tirés aux termes de la présente licence et d'aider la Collective à accorder une rémunération adéquate à ses participants. Il est convenu que cet échantillonnage sera effectué par une tierce partie jugée acceptable par le Manitoba et la Collective, et que ni le Manitoba ni la Collective n'auront accès à des renseignements leur permettant d'identifier un établissement d'enseignement particulier. Il est convenu qu'aucun des renseignements tirés de l'échantillonage en cause ne seront utilisés directement ou indirectement en rapport avec des actions ou des réclamations concernant la violation du droit d'auteur ou la violation de tout autre droit, que ce soit pendant ou après la durée de la présente convention.

9) **INDEMNITÉ**

9.01 La Collective indemnise et tient à couvert le Manitoba, ainsi que tous les établissements d'enseignement et toutes les personnes qui tirent par reproduction reprographique des exemplaires d'oeuvres publiées, à l'égard de toutes redevances de droits d'auteur, réclamations, pertes, dépenses, dommages, reddition de comptes concernant les bénéfices, causes d'action, frais et responsabilités de toutes sortes (ci-après appelés «réclamation») découlant du tirage de ces oeuvres publiées, à condition que :

i) la reproduction soit faite aux fins indiquées au paragraphe 2.02 et en conformité avec les conditions de reproduction autorisée énoncées à l'article 4;
ii) les oeuvres publiées en cause excluent celles qui sont éditées par le Manitoba et celles qui, au moment de leur reproduction, sont inscrites simultanément à la liste des exclusions en vigueur et à l'avis des exclusions visés aux paragraphes 3.01 et 3.02, mais comprennent toutes les autres oeuvres publiées, qu'elles se trouvent ou non dans le répertoire;
iii) le Manitoba avise la Collective de toute réclamation, aussi vite qu'il est raisonnablement possible, après qu'il en a lui-même été informé.

9.02 La Collective indemnise et tient à couvert le Manitoba, ainsi que tous les établissements d'enseignement et toutes les personnes qui tirent des exemplaires à présentation spéciale d'oeuvres publiées, à l'égard des réclamations découlant du tirage en cause, à condition que :

i) la reproduction soit faite aux fins indiquées au paragraphe 5.03 et en conformité avec les conditions énoncées à l'article 5;
ii) les oeuvres publiées en cause excluent les oeuvres non éditées au Canada ainsi que les oeuvres éditées par le Manitoba et les oeuvres qui, au moment de leur reproduction, sont simultanément inscrites à la liste des exclusions en vigueur et à l'avis des exclusions;
iii) le Manitoba avise la Collective de toute réclamation, aussi vite qu'il est raisonnablement possible, après qu'il en a lui-même été informé.

9.03 La Collective se charge à ses propres frais de la contestation en justice ou du règlement des réclamations visées par l'indemnité prévue au paragraphe 9.01 et s'occupe par conséquent des négociations relatives au règlement des réclamations et assume la défense dans le cadre de toute action en justice se rapportant aux réclamations. Toutefois, aucun règlement des réclamations ne peut être conclu sans la permission du Manitoba et, le cas échéant, celle de l'établissement d'enseignement à l'encontre duquel la réclamation est faite, l'octroi des permissions en cause ne pouvant être indûment retardé ou refusé. La Collective tient le Manitoba au courant et le consulte, au préalable dans les cas où cela est possible, à l'égard des procédures et des négociations se rapportant aux réclamations. Le Manitoba est habilité à intervenir à l'égard des actions ou négociations se rapportant aux réclamations, ou à en prendre charge, dans la mesure où il est d'avis, sur un plan objectif, que la défense ou les négociations ne sont pas menées dans son intérêt supérieur. Par dérogation aux paragraphes 9.01 ou 9.02, le Manitoba procède à une intervention ou à une prise en charge aux termes du présent paragraphe à ses propres frais, étant entendu que la Collective demeure responsable à l'égard des dommages-intérêts accordés ou du règlement conclu par elle.

9.04 Advenant que le Manitoba ou l'établissement d'enseignement refuse ou omette de permettre un règlement et que le montant du règlement intervenu ultérieurement ou des dommages-intérêts accordés ulturieurement dépasse celui du règlement proposé à l'origine, le Manitoba est responsable à l'égard du montant des pertes, frais et dommages-intérêts ultérieurement engagés ou subis par la Collective qui dépasse le montant de ce dernier règlement.

9.05 Le Manitoba coopère (sans contribuer financièrement) à la défense se rapportant à toute réclamation, selon ce que demande raisonnablement la Collective.

10) RESPECT DE LA CONVENTION PAR LES UTILISATEURS

10.01 Le Manitoba fait tout en son possible pour informer les établissements d'enseignement à l'égard des conditions de reproduction autorisée énoncées à l'article 4.

10.02 Le Manitoba informe les établissements d'enseignement du fait qu'ils sont tenus de le notifier à l'égard de toute réclamation faite contre eux dès que possible après qu'ils en prennent connaissance, de manière à ce que l'indemnité prévue à l'article 9 s'applique.

10.03 Dans les cas où il l'estime opportun, le Manitoba soumet à la Collective, pour qu'elle l'examine et la commente, toute documentation qu'il a l'intention de distribuer aux établissements d'enseignement pour les informer à l'égard de la présente convention.

10.04 Le Manitoba élabore, en consultation avec la Collective, un protocole d'observation de la licence ayant pour objet de traiter les violations se rapportant aux conditions de reproduction autorisée. Le protocole en cause doit indiquer l'entité juridique appropriée qui accepte la responsabilité et prévoir un mécanisme de consultation avec le Manitoba permettant d'éviter des poursuites judiciaires. Le protocole doit être remis à la Collective pour qu'elle le commente et l'approuve, l'approbation en cause ne pouvant être refusée que pour des motifs raisonnables.

11) **ANNEXES.** L'annexe «A» fait partie intégrante de la présente convention.

12) **MODIFICATIONS DE LA CONVENTION.** Sauf disposition contraire des présentes, la présente convention ne peut être modifiée que par un écrit signé par les parties.

13) **AVIS.** Les avis prévus par la présente convention sont consignés par écrit et sont réputés être valablement fournis s'ils sont envoyés par courrier recommandé ou service de messagerie payé à l'avance ou par télécopie soit à l'adresse de la partie indiquée ci-dessus ou, dans le cas des télécopies, au numéro de télécopieur indiqué ci-dessous, étant entendu que les avis destinés au Manitoba doivent être envoyés à l'attention du directeur de la Direction des ressources pédagogiques, soit aux personnes, adresses et numéros de télécopieur que l'une des parties indique à l'autre par écrit. Les avis envoyés par courrier recommandé sont réputés être fournis au moment de l'ouverture des bureaux le cinquième jour ouvrable qui suit le jour de mise à la poste de l'avis, dans la mesure où aucune interruption en cours du service postal ne serait susceptible de retarder sa transmission. Les avis envoyés par messager ou par télécopie sont réputés être fournis au moment de leur réception.

Numéros de télécopieur :

Manitoba (204) 954-8756
À l'attention du directeur de la Direction des ressources pédagogiques

La Collective (416) 366-6635
À l'attention du directeur national

14) **DIFFÉRENDS.** Les parties s'efforcent de résoudre au moyen de discussions les différends qui surviennent entre elles concernant l'interprétation de la présente licence ou les conditions de sa prorogation après l'échéance de la durée initiale ou d'un délai de prorogation résultant de l'application du paragraphe 7.02 et elles peuvent convenir de résoudre les différends de cette nature au moyen de l'arbitrage. Il est convenu que ni l'une ni l'autre des parties ne peut déposer une demande auprès de la Commission du droit d'auteur avant d'avoir accompli les démarches suivantes :

a) elle s'est efforcée de discuter avec l'autre partie de la possibilité qu'elles conviennent toutes deux de recourir au mécanisme d'arbitrage prévu à l'article 15 concernant leur différend en ce qui a trait aux conditions de prorogation;
b) l'une des parties informe l'autre partie qu'elle n'est pas disposée à recourir à l'arbitrage, au moyen d'un écrit remis au moins dix (10) jours avant le dépôt de l'avis requis aux fins d'une demande auprès de la Commission du droit d'auteur.

15) **ARBITRAGE.** Advenant qu'elles conviennent par écrit d'avoir recours à l'arbitrage pour résoudre un différend dans l'une des situations visées à l'article 14, les parties saisissent deux arbitres de leur différend, dans un délai de quatorze (14) jours après avoir convenu de recourir à l'arbitrage, l'un des arbitres étant choisi par la Collective et l'autre par le Manitoba. Les arbitres choisissent un troisième arbitre et, en cas de désaccord concernant le troisième arbitre ou la procédure, la nomination ou la procédure en cause est

effectuée en conformité avec les règles de procédure des arbitrages établies par l'Institut des arbitres du Canada inc. La décision majoritaire des arbitres est définitive et lie les parties.

16) **RÉSILIATION POUR DÉFAUT.** En cas de défaut par l'une des parties de respecter les obligations prévues aux présentes et de continuation du défaut au cours des trente (30) jours qui suivent la réception d'un avis l'intimant de mettre un terme à la violation, l'autre partie peut procéder à la résiliation immédiate de la présente convention en remettant un avis en ce sens à la partie en défaut, sous réserve des conditions suivantes :

i) les parties n'ont pas convenu par écrit de recourir à l'arbitrage concernant un différend relié au défaut en cause;

ii) la partie qui désire procéder à la résiliation n'est pas elle-même en défaut à l'égard des obligations prévues aux présentes;

iii) pour l'application du présent article, dans la mesure où le Manitoba respecte le protocole d'observation prévu au paragraphe 10.04, le fait qu'un établissement d'enseignement viole les conditions de reproduction autorisée n'est pas réputé constituer une violation de la présente convention.

17) **DROIT APPLICABLE.** La présente convention est régie et interprétée selon le droit en vigueur au Canada et au Manitoba en ce qui concerne les contrats négociés, passés et entièrement exécutés au Manitoba et les parties reconnaissent la compétence des tribunaux du Manitoba et du Canada.

18) **INCESSIBILITÉ.** La partie qui désire procéder à la cession de la présente convention doit obtenir le consentement écrit préalable de l'autre partie.

EN FOI DE QUOI, les parties ont passé la présente convention, laquelle entre en vigueur à la première date indiquée à la page 1 des présentes.

POUR CANADIAN REPROGRAPHY COLLECTIVE,

_____
Co-président

_____
Co-président

Le directeur national,

_____

Date : _____

POUR LE GOUVERNEMENT DU MANITOBA,

Le ministre de l'Éducation et de la Formation professionnelle,

_____

Date : _____

ANNEXE «A»

ÉTABLISSEMENTS D'ENSEIGNEMENT VISÉS PAR LA CONVENTION ATTRIBUTIVE DE LICENCE INTERVENUE ENTRE LA «CANADIAN REPROGRAPHY COLLECTIVE» ET SA MAJESTÉ LA REINE DU CHEF DU MANITOBA.

Pour l'application de la présente convention, l'expression «établissement d'enseignement» s'entend des établissements énumérés ci-dessous, pris individuellement ou collectivement.

1) Divisions scolaires

2) Districts scolaires

3) Les établissements scolaires suivants :

L'école manitobaine pour les malentendants
Marymound School
Children's Home of Winnipeg
Rossbrook House
Seven Oaks Centre for Youth

4) Les écoles indépendantes suivantes qui sont subventionnées aux termes du paragraphe 60(5) de la Loi sur les écoles publiques :

Balmoral Hall School for Girls
Bethel Christian Academy
Calvin Christian School
Christ the King
Christian Heritage
Community Bible Fellowship Christian
Dufferin Christian
Faith Baptist Christian Academy
Holy Cross
Holy Ghost
Immaculate Heart of Mary
Immanuel Christian
Joseph Wolinsky
Killarney Christian Academy
Lakeside Christian
Linden Christian Elementary
McGillivray Montessori
Mennonite Brethren Collegiate
Mennonite Collegiate Institute
Mennville
Msgr. James K. MacIsaac
Oholei Torah
Pine Creek Colony
Potter's Wheel
Ramah Hebrew
Red River Valley Jr. Academy
Shady Lane
Springs of Living Water
Steinback Christian High School
St. Alphonsus
St. Boniface Diocesan
St. Charles Academy
St. Edward
St. Emile
St. Gerard
St. Ignatius

St. John Brebeuf
St. John's Ravenscourt
St. Joseph the Worker
St. Mary's Academy
St. Mary's Montessori (Children's House)
St. Maurice
St. Paul's High
St. Vladimir's College
Talmud Torah\I.L. Peretz
The King's
The Laureate
Torah Academy
University of Winnipeg Collegiate
Western Christian College
Westgate Mennonite
Westpark
Winnipeg Mennonite Elementary
Zion Christian Academy

5) Service du matériel spécial relevant de la Direction des soins et du développement à l'enfance au sein de la Division des services auxiliaires et du développement des programmes au ministère de l'Éducation et de la Formation professionnelle du Manitoba.

Manitoba

Education and Training

Instructional Resources

Main Floor
Robert Fletcher Building
P.O. Box 3
1181 Portage Avenue
Winnipeg, Manitoba, CANADA
R3G 0T3

March 1992

TO: Superintendents of Schools
School Board Chairpersons
Secretary-Treasurers of Schools
Principals
Library/Media Coordinators

RE: **Policies relating to the Licence Agreement between the Canadian Reprography Collective and the Minister of Education and Training permitting the reproduction of copyright materials**

COLLECTIVES ESTABLISHED

The current Copyright Act (R.S.C. 1985, Chapter C-42 and the 1988 amendment) authorizes the creation of licencing bodies, commonly known as collectives, to administer copyright on behalf of their members. The collectives may issue licences to users, allowing them to reproduce parts of works under certain terms and conditions and for a fee. In August 1988, the Canadian Reprography Collective (CANCOPY) was incorporated as a federal non-profit organization. The members of CANCOPY are the writing and publishing organizations of Canada, individual authors, illustrators, creators of published material and individual publishers.

LICENCE AGREEMENT SIGNED BETWEEN CANCOPY AND MINISTER OF EDUCATION AND TRAINING

The Minister of Education and Training has signed a licence agreement with CANCOPY covering all school districts and school divisions as well as independent schools and institutional schools receiving public funds through the Department of Education and Training. The special format resources of the Special Materials Services Unit, Child Care and Development Branch, Manitoba Education and Training, as well as the provision of courses through the Independent Study Program and the Teacher Mediated Program, Distance Education and Technology Branch, Manitoba Education and Training, are also covered by the licence agreement. This first licence covers the period July 1, 1991, through June 30, 1992. The purpose of this licence is to permit the non-profit reproduction of published works for any purpose within the mandate of an educational institution operating under the authority of the Education Administration Act. These published works can be reproduced and used for educational, recreational, professional, research, archival, and administrative purposes associated with the educational institutions; as well as communication of information to parents and the community.

ACCESS TO PUBLISHED WORK NOW AVAILABLE

With the signing of a copyright licence agreement between the Canadian Reprography Collective and the Minister of Education and Training, there is now in place a mechanism whereby teachers and students, Kindergarten through Senior 4, have immediate access to published works protected by copyright. The economic interests of some 1.5 million authors and publishers in Canada, the United States, France, Spain, Switzerland, Germany, Iceland, Norway, the United Kingdom and Australia as well as the Quebec collective, l'Union des écrivains et écrivaines québécois (UNEQ), are represented by the Canadian Reprography Collective or CANCOPY.

COPYING DEFINED

Copying is defined as the making of visually perceptible facsimile copies of published works by photocopying, xerography, facsimile transmission, duplication (from a stencil), microform (including microfilm and microfiche), transcription or drawing (including tracing) onto acetate or other material for overhead or slide projection, and by typing or word processing (using a typewriter, computer, or word processor). Offset printing is not covered by the terms of this agreement because it is publishing rather than copying.

TERMS OF LICENCE

The terms of the licence establish the guidelines for permitted copying and the categories of works to which the licence does not apply. The licence also contains terms concerning the production of copies in alternative formats (i.e., copies on audiotape, in braille, and in large print, and machine-readable copies) for students who are blind, visually impaired, or otherwise unable to read normal print because of a disability. A copy of the Licence Agreement, providing details of the copying guidelines and prohibitions as well as the list of educational institutions covered by the agreement, form part of this package of materials.

EXCLUSIONS

Some publishers and authors have indicated that they do not wish the licence agreement to extend to their publications. Therefore, such works are not covered by the terms of this licence. The Exclusions List included in this package provides the list of publishers, authors, and titles that are excluded from the licence; no material on this list may be copied beyond the limits of fair dealing or insubstantial use as permitted in the Copyright Act, without the express permission of the copyright holder. The Minister of Education and Training will receive from CANCOPY on a regular basis, as necessary, a list of names of copyright owners who have indicated that they do not wish their works to be copied under the licence agreement. The Minister will then forward notices of those exclusions to all schools that are covered by this licence. These notices will be sent on or about April 15, August 31 and December 15, and are effective on the date on which they are received. Currently, the Canadian exclusions are: all titles by Nelson Canada; and all works by authors Clarence Boon and Gladys Downes. A comprehensive list containing exclusions from the United States and the United Kingdom, as well as the Canadian ones, will be sent to schools and must be kept near the photocopier or copying equipment under the terms of the licence. Updates must be added as received.

ACCESS TO PUBLISHED MATERIALS PROVIDED BY THE LICENCE

All teachers and employees should become familiar with the terms and conditions under which copying may be done. Basically, access is provided as follows: authorization is provided for copying of either 10% of a published work or any of the following published materials, whatever is greater:

- an entire single short story, play, essay, article, poem, or item of print music from a book or periodical issue;
- an entire newspaper article or page;
- an entire entry from an encyclopedia, dictionary or similar reference work;
- an entire reproduction of an artistic work (including drawings, paintings, prints, photographs, and works of sculpture and architecture) from a book or periodical issue;
- an entire chapter of a work.

The licence with CANCOPY covers published works only. This means literary, dramatic, artistic and musical works or parts of such copyright works of which printed copies have been distributed to the public. This includes, but is not restricted to, books, folios, magazines, newspapers and other periodical publications. Non-print materials, such as videotape productions, films, and computer software, are <u>not</u> a part of this licence.

Multiple copies of the above printed materials are authorized such that each student will have a copy for his/her personal study, two copies for the teacher, copies for administrative purposes (including copies to parents or to the community) and a reasonable number of copies for reference in or loan by libraries.

The copying of rare or fragile materials for preservation, the copying of damaged or missing pages, and the copying of out-of-print works are also permitted.

If the copying of published works described above goes beyond the permitted copying levels, then the user will have to apply in writing or by fax for specific authorization (a transactional licence) from either CANCOPY or from the copyright owner.

The Canadian Reprography Collective
379 Adelaide Street West, Suite M1
Toronto, Ontario M5V 1S5

Telephone: (416) 366-4768
FAX: (416) 366-6635

Systematic, cumulative copying from the same copyright work or the permanent binding of copies into anthologies are prohibited.

DURATION OF LICENCE

The first licence agreement will be in effect for a period of one year; at the end of this time it may be extended for a period of up to twelve months. It is expected that a second licence agreement will be negotiated sometime before the first licence expires.

WHAT THE LICENCE DOES NOT COVER

There are several categories of works to which the licence agreement does not apply, including: unpublished works; published workbooks and other works considered as consumable; print music published for use by choirs, orchestras and bands as well as publications which contain prominent notices expressly prohibiting copying. Additionally, there are individual authors and publishers who have written CANCOPY expressly stating that their works will not be part of the CANCOPY licence, as discussed earlier.

AUDIOTAPE OR VIDEOTAPE PRODUCTIONS, FILMS, OR COMPUTER SOFTWARE

The licence agreement with CANCOPY covers print materials only. Permission to copy audiotape or videotape productions, films, computer software or other A/V, must be sought directly from the holder of the copyright, since the CANCOPY licence does not cover the copying of these materials.

CONTENTS OF THIS PACKAGE

Included with this policy statement are materials in French for the French schools, in English for the English schools, and in both languages for the Immersion schools. The booklet Copyright in Manitoba: what teachers should know and the posters that provide a summary of the terms and conditions under which copying may or may not occur are included with this package. The posters must be placed near all copying equipment on the premises. The booklet enclosed will be provided also to each teacher and to all support staff in the Province. Additional copies of the booklets and posters may be obtained from the Circulation Desk, Library, Instructional Resources Branch, Manitoba Education and Training. A copy of the complete text of the Licence Agreement is enclosed with this package. Queries about the terms of the Licence Agreement may be directed to the Instructional Resources Branch at 945-7833/7823 or 1-800-282-8069 (ask for appropriate extension). For additional copies of all the materials in this package, please complete the enclosed Order Form.

COMPLIANCE

Any concerns or complaints expressed by copyright owners to teachers or principals about the possible illegal copying of their works must be reported to the appropriate school division/district official and the Instructional Resources Branch without delay. A compliance protocol is being drafted with remedies for those educators who violate the terms of the Licence Agreement.

CONCLUSION

The licence between CANCOPY and the Minister of Education and Training permits immediate access to copyrighted materials in the amounts that most educators require. Written permission must be obtained prior to the reproduction of excerpts from works that are protected by copyright and that are not covered by the licence agreement with CANCOPY or in amounts in excess of the licence with CANCOPY. Please note that, under the Canadian Copyright Act, copying that is considered as either fair dealing or insubstantial use has not been superceded by this licence.

FURTHER INFORMATION

Contact the Instructional Resources Branch, Manitoba Education and Training at 945-7833/7823 or 1-800-282-8069 and ask for appropriate extension.

Manitoba

Education
and Training

Instructional Resources

Main Floor
Robert Fletcher Building
P.O. Box 3
1181 Portage Avenue
Winnipeg, Manitoba, CANADA
R3G 0T3

March 1992

TO: Superintendents of Schools
School Board Chairpersons
Secretary-Treasurers of Schools
Principals
Library/Media Coordinators

RE: **Procedures relating to the execution of the terms of the Licence Agreement between the Minister of Education and Training and CANCOPY**

Included in this package of materials are items that are regulated by the terms of the Licence Agreement between the Canadian Reprography Collective (CANCOPY) and the Minister of Education and Training, on behalf of schools receiving funding from the Department. These terms are discussed below along with the recommended administrative procedures.

POSTERS

The posters provided in this package entitled Yes you may copy and You may not copy are required to be posted on or near photocopiers or other copying equipment. This may be accomplished by posting both posters on the wall above the machine; or, alternatively, on the lid of the machine. Should your copying equipment be all together in one room, posting one set of posters in a prominent place is sufficient. The intent, however, is important -- that of alerting those copying copyright materials of what may or may not be copied.

THE LICENCE AGREEMENT

The full text of the Licence Agreement is provided in this package. It is recommended that a 3-ring binder, appropriately labelled, be placed near the copying equipment and that the Licence Agreement be placed in it.

..../2

THE EXCLUSIONS LIST

Under the terms of the agreement, this list must be near copying machines for ease of consultation. The Exclusions List should, therefore, be included in the binder. Also, updates may be three-hole-punched and added as received which is particularly important since the updates become effective upon receipt.

TEACHER'S BOOKLETS

A package of the booklets entitled Copyright in Manitoba : what teachers should know is enclosed with these informational materials. Please distribute one booklet to each teacher and support staff under your jurisdiction. Should you require additional copies, please use the Order Form provided. One copy of this teacher's booklet should be placed in the previously mentioned binder.

ORDER FORM

Schools requiring more supplies of any of the items in this package are advised to use the enclosed order form and forward to the Library, Instructional Resources Branch, Manitoba Education and Training, Box 3, 1181 Portage Avenue, Winnipeg, Manitoba, R3G 0T3 or FAX 945-8756. Please include a pre-addressed label to expedite your order.

COMPLIANCE

Failure to provide access to the Exclusions List and to post Yes you may copy and You may not copy posters constitutes a breach of the contract for which legal proceedings could be undertaken against the institution.

A formal compliance procedure is being drafted by the Minister's Advisory Committee on Copyright with remedies for those educators who violate the terms of the Licence Agreement.

The federal Copyright Act protects the rights of the creator--the author, editor, artist--who has produced a work. The licence agreement gives immediate access to published work in the amounts thought most commonly required by educators. Future agreements may contain terms based on varying conditions and rates of use. Educators must honour the law and the licence.

FOR FURTHER INFORMATION

Contact the Instructional Resources Branch, Manitoba Education and Training, at 945-7833/7823 or 1-800-282-8069 and ask for appropriate extension.

LICENCE AGREEMENT FOR REPRODUCTION OF PUBLISHED WORKS

THIS LICENCE AGREEMENT is made in duplicate on 1st day of July, 1991 between:

CANADIAN REPROGRAPHY COLLECTIVE
Incorporated pursuant to the laws of Canada, and having its office at Suite M1, 379 Adelaide Street West, Toronto, Ontario M5V 1S5

(hereinafter called the "Collective")

– and –

THE GOVERNMENT OF MANITOBA
As represented by the Minister of Education and Training, Robert Fletcher Building, 1181 Portage Avenue, Winnipeg, Manitoba R3G 0T3

(hereinafter called "Manitoba")

WHEREAS the Collective is a Reproduction Rights Organization established by copyright owners to administer reproduction and other rights in their published works,

AND WHEREAS the purpose of this Licence Agreement is to permit reproduction of published works in consideration of the remuneration of the copyright owners and so to provide access to such published works, without substituting for material which a user would reasonably be expected to purchase,

AND WHEREAS the parties have agreed that nothing in this Licence Agreement shall be construed as an admission by either of them in respect to the applicability or extent of any defence or exemption which may be available under the Copyright Act or any revision thereto,

AND WHEREAS the parties have agreed that the payment to be made hereunder is not based on any pre-estimate of the number of copies being copied by educational institutions covered by this Licence Agreement or the value of such copies,

AND WHEREAS the Collective is prepared to grant a copyright licence to Manitoba in accordance with the terms and conditions hereinafter provided,

NOW THEREFORE, THE PARTIES HERETO AGREE as follows:

1. **DEFINITIONS**. For the purpose of this Licence Agreement, certain terms shall be defined as follows:

(i) "**affiliate**" means any individual author or publisher, estate of an author or publisher, organization representing authors or publishers, or other person with interests in copyright works, who has licensed reprographic rights to the Collective;

(ii) "**copies**" means copies made by reprographic reproduction, and "**copying**" means making copies by reprographic reproduction;

(iii) "**copyright owner**" means, in respect of any act in relation to a copyright work, the person or persons with authority to authorize such act;

(iv) "**educational institution**" means an educational institution included within Schedule "A", which is attached hereto and forms part of this Licence Agreement;

(v) "**library**" includes a resource or learning centre or any similar collection of published works that are part of or belong to an educational institution included within Schedule "A" hereto;

(vi) "**published works**" means literary, dramatic, artistic and musical works or parts of such copyright works, of which printed copies have been distributed to the public, including but not restricted to, books, folios, magazines, newspapers and other periodical publications;

(vii) "**Repertoire**" means those published works or parts of such works which appear in books, newspapers, magazines, journals, other periodicals and other publications published in Canada by affiliates or published in or outside Canada by other copyright owners where an agreement between the Collective and another copyright collective or licensing body authorizes the Collective to represent such other copyright owners;

(viii) "**Reproduction Rights Organization**" means a society, organization or corporation which is authorized to administer rights collectively on behalf of copyright owners in respect to a repertoire of copyright works and includes a "licensing body" as defined in the Copyright Act, R.S.C. 1985, c. C-42, 1988 as amended; and

(ix) "**reprographic reproduction**" means the making of visually perceptible facsimile copies of published works by photocopying, xerography, facsimile transmission, duplicating (from a stencil), and microform (including microfilm and microfiche), by transcription or drawing (including tracing) onto acetate or other material for an overhead or slide projection, by typing or word processing (using a typewriter, computer or word processor) and by analogous techniques of reproduction.

2. PERMISSION

2.01. AUTHORIZATION

(i) The Collective grants permission, during the term of this Licence Agreement, for the not-for-profit reprographic reproduction of published works in its Repertoire by Manitoba, subject to the terms and conditions of this Licence Agreement.

(ii) The parties acknowledge that the Copyright Act does not apply to works in the public domain and provides for some reproduction of published works by specific exemptions, by defences such as fair dealing, or because the portion reproduced is insubstantial.

2.02. **PURPOSE OF COPYING**. The reprographic reproduction permitted shall be for any purpose within the control of an educational institution included in Schedule "A" and operating within the authority of the Education Administration Act, including educational, recreational, professional, research, archival and administrative activities associated with such educational institution, and including communication of information to parents and the community.

3. EXCLUSIONS LIST

3.01. **WORKS EXCLUDED FROM REPERTOIRE**. The Collective shall forward to Manitoba upon execution of this Licence Agreement and at least once annually a list indicating categories of works and works of affiliates which are excluded from the Repertoire as well as the names of any other copyright owners where the Collective has been notified in writing that such copyright owners do not wish their works to be copied under a licence from the Collective (all hereinafter collectively called "exclusions").

3.02. **NOTICE TO EDUCATIONAL INSTITUTIONS**. Manitoba shall during the term of this Licence Agreement, forward to the educational institutions, on or about August 15, December 15 and April 15 of each year, a notice of those exclusions received by Manitoba from the Collective during the four-month period ending one month prior to each of the above dates.

4. TERMS AND CONDITIONS OF AUTHORIZED REPROGRAPHIC REPRODUCTION

4.01. **PERMITTED COPYING**. This Licence Agreement authorizes copying of either 10% of a published work or any of the following published material, whichever is greater:

(i) An entire single **short story, play, essay, article, poem, or item of print music**, from a book or periodical issue (including a set of conference proceedings) containing other works;

(ii) An entire **newspaper article or page**;

(iii) An entire entry from an **encyclopedia, dictionary, annotated bibliography or similar reference work**;

(iv) An entire **reproduction of an artistic work** (including drawings, paintings, prints, photographs and works of sculpture, architecture or artistic craftsmanship) from a book or periodical issue containing other works; and

(v) An entire **chapter** of a work.

4.02. **COPYING RARE OR FRAGILE MATERIALS FOR PRESERVATION.** To prevent deterioration of rare or fragile publications in the holdings of a library, a copy of any such publication may be made.

4.03. **COPYING DAMAGED OR MISSING PAGES**. Copies in excess of the copying permitted in Clause 4.01 may be made to replace any damaged or missing pages in a publication belonging to an educational institution. Reasonable efforts shall first be made to secure a replacement copy within a reasonable period of time and at a reasonable price.

4.04. **COPYING OUT OF PRINT WORKS**. A single copy of a missing or damaged, out of print work may be made to replace such work in the holdings of a library. Reasonable efforts shall first be made to secure a replacement copy within a reasonable period of time and at a reasonable price and the Collective must be notified in writing that such a copy has been made.

4.05. **CATEGORIES OF WORK TO WHICH THIS LICENCE AGREEMENT DOES NOT APPLY**. This Licence Agreement does not apply to the following works:

(i) Unpublished works;

(ii) Published workbooks, published work cards, published assignment sheets, published tests and published examination papers, and any other published materials intended to be "consumable";

(iii) Published materials containing commercially valuable proprietary information such as newsletters with restricted circulation;

(iv) Originals of artistic works including photographs or prints;

(v) Photographic negatives or other transparencies (positives), mounted or unmounted;

(vi) Print music which is published for use by choirs, orchestras, bands and similar ensembles and by individual performers;

(vii) Publications that contain a prominent notice expressly prohibiting copying under a licence from a collective or licensing body; and

(viii) Published works which are on both the current exclusions list and the notice of exclusions in accordance with Clauses 3.01 and 3.02.

4.06 **MULTIPLE COPIES**. This Licence Agreement authorizes the making of:

(i) that number of copies which is sufficient to permit each student to have one copy only for his or her personal study and each teacher to have two copies;

(ii) that number of copies required for administrative purposes, including communication of information to parents and to the community; and

(iii) a reasonable number of copies for reference in or loan by libraries.

4.07. **GENERAL PROHIBITIONS.**

(i) There shall be **no systematic, cumulative copying** from the same copyright work or material for one course of study or program beyond the limits set out in Clause 4.01.

(ii) Copies shall not be permanently bound into anthologies.

(iii) There shall be no input or output of published works into or from a database or computer file except for the purpose of making copies as permitted by this Licence Agreement.

4.08. **NOTICE ON COPIES**. In accordance with good bibliographic practice, copies of published works shall include, on at least one page, a credit to the author, artist or illustrator, and to the source.

4.09. **COPYING BEYOND THE LIMITS OF THIS LICENCE AGREEMENT**. This Licence Agreement does not permit unrestricted copying. Copying of published material outside the terms of this Licence Agreement requires the specific authorization of the Collective or copyright owner.

5. PRODUCTION OF ALTERNATE FORMAT COPIES

5.01. **DEFINITION**. For the purpose of this Licence Agreement, "**alternate format copies**" means audio, braille, large print (by reprographic reproduction), and machine readable copies of published works produced for persons who are blind, visually impaired or otherwise unable to read print because of a disability.

5.02. **AUTHORIZATION**. The Collective grants permission, during the term of this Licence Agreement and subject to the terms and conditions of this Clause 5, for the production of alternate format copies of all or any part of published works within the Repertoire, excepting any works not published in Canada or Australia. The Repertoire does not include any works which are on

both the current exclusions list and notice of exclusions in accordance with Clauses 3.01 and 3.02. For the purposes of this Clause 5 only, the authorization is extended to include materials listed in Clause 4.05 (ii).

5.03. **PURPOSE OF COPYING.** The production permitted shall be for any purpose within the mandate of an educational institution included in Schedule "A" hereto and operating within the authority of The Education Administration Act, including educational, recreational, professional, research, archival and administrative activities associated with such educational institution, and including communication of information to parents and the community. Use of alternate format copies shall be restricted to persons who are blind, visually impaired or otherwise unable to read print because of a disability and persons involved in educating such persons.

5.04. **ALTERATIONS**. Alternate format copies of all or part of a published work shall contain no alterations from the portion copied except where reasonably necessary to satisfy the exigencies of the alternate format used.

5.05. **NOTICE ON ALTERNATE FORMAT COPIES**. In accordance with good bibliographic practice, alternate format copies shall include a credit to the author, artist or illustrator, and to the source.

5.06. **REPORTING**. Manitoba shall maintain a complete list of the titles produced in alternate format in each calendar year during the term of this Licence Agreement and shall send such list with a report to the Collective within two months from the end of the calendar year in question. Such report shall include, for each title, the publisher and author(s) of the published works so copied in alternate format, the alternate format used, and the number of copies made in each format. It is agreed that none of the information contained in such list and report will be used directly or indirectly in or relating to any action or claim for copyright infringement or for breach of any other right, either during or after the term of this Licence Agreement.

5.07. **NO COMMERCIAL SALE**. Alternate format copies may not be sold for more than the cost of their manufacture.

5.08. **AVAILABILITY TO COPYRIGHT OWNERS**. On request by the affiliate whose work has been produced in an alternate format audio copy, the educational institution which holds the master of the alternate format audio copy shall make one audio copy available to such affiliate.

6. **PAYMENT** In consideration of the permission herein granted, Manitoba shall pay a licence fee of TWO HUNDRED THOUSAND DOLLARS ($200,000.00) to the Collective on or before November 1st, 1991, to cover all copying for the initial twelve-month term beginning on the effective date (as set forth in Clause 7.01) of this Licence Agreement.

7. TERM OF LICENCE AGREEMENT

7.01. **EFFECTIVE DATE AND TERM OF LICENCE AGREEMENT** The initial term of this Licence Agreement shall commence as of July 1st, 1991 and end on June 30th, 1992.

7.02. **AUTOMATIC RENEWAL**. The Licence Agreement shall be automatically renewed for subsequent three-month terms (hereinafter called "extensions"), subject to the following: at any time at least ninety (90) days prior to the end of the initial term or of any extension, either party may give the other party notice that it wishes to renegotiate any of the terms and conditions of the Licence Agreement, and in the event such notice is given by either party the Licence Agreement will terminate at the end of the initial term or current extension, as the case may be, unless prior to the end of such initial term or extension the parties have agreed on new terms and conditions. The licence fee for each three-month extension shall be FIFTY THOUSAND DOLLARS ($50,000.00). The licence fee for each extension shall be payable on the date of commencement of the extension in question.

8. **SAMPLING**. The parties agree to develop a sampling protocol for the purpose of estimating the total number of copies made under this Licence Agreement and assisting the Collective in allocating remuneration to its affiliates. It is agreed that the sampling will be administered by a third party who shall be acceptable to Manitoba and the Collective, and that neither Manitoba nor the Collective will have access to any information which enables the identification of a particular educational institution. It is agreed that none of the information obtained in such sampling will be used directly or indirectly in or relation to any action or claim for copyright infringement or for breach of any other right, either during or after the term of this Licence Agreement.

9. INDEMNITY

9.01. The Collective shall indemnify and save harmless Manitoba, all the educational institutions and all persons who make copies of any published works by reprographic reproduction from and against all royalties, claims, losses, expenses, damages, accounting of profits, causes of action, costs, and liabilities of every kind (hereinafter called a "Claim") arising from or out of such copying of any published works, provided that:

(i) The copying has been for the purpose set forth in Clause 2.02 and within the terms and conditions of authorized copying set forth in Clause 4;

(ii) Such published works shall not include any works which were on both the current exclusions list and notice of exclusions (in accordance with Clauses 3.01 and 3.02) when they were copied and any works published by Manitoba, but shall otherwise include all published works whether or not they are within the Repertoire; and

(iii) Manitoba shall give notice of any Claim to the Collective as promptly as reasonably possible after the Minister becomes aware of the Claim.

9.02. The Collective shall indemnify and save harmless Manitoba, all the educational institutions and all persons who produce alternate format copies of any published works from and against all Claims arising from or out of such production of alternate format copies of any published works, provided that:

(i) The copying has been for the purpose set forth in Clause 5.03 and within the terms and conditions set forth in Clause 5;

(ii) Such published works shall exclude works not published in Canada and shall also exclude works which were on both the current exclusions list and notice of exclusions (in accordance with Clauses 3.01 and 3.02) when they were copied and works published by Manitoba; and

(iii) Manitoba shall give notice of any Claim to the Collective as promptly as reasonably possible after Manitoba becomes aware of the Claim.

9.03. The Collective shall defend and/or settle, at its own expense, any Claim covered by the indemnity in Clause 9.01 and shall accordingly conduct negotiations relating to the settlement of the Claim and shall conduct the defence of any legal action relating to the Claim. However no settlement of any Claim shall be entered into without the permission of Manitoba and without the permission of the educational institution (if any) against whom the Claim has been made, which permissions shall not unreasonably be withheld or delayed. The Collective shall keep Manitoba informed and shall consult with Manitoba, in advance where possible, concerning all proceedings and negotiations relating to any Claim. Manitoba shall have the right to intervene in or assume control of any action or negotiation relating to a Claim if Manitoba believes, acting reasonably, that the defence or negotiations are not being handled in the best interests of Manitoba. Notwithstanding anything in Clauses 9.01 or 9.02, any such intervention or assumption of control shall be at Manitoba's own expense but the Collective shall remain responsible for any damages awarded or settlement agreed to by the Collective.

9.04. If Manitoba or the educational institution declines or fails to permit a settlement, and then a settlement is subsequently made or damages are subsequently awarded which are in excess of such proposed settlement, then Manitoba will be responsible for all losses, costs and damages subsequently incurred or suffered by the Collective over and above the amount of such proposed settlement.

9.05. Manitoba will co-operate in the defence of any Claim (but not including financial contribution) in such ways as the Collective may reasonably require.

10. USER COMPLIANCE

10.01. Manitoba will use best reasonable efforts to inform educational institutions of the terms and conditions of authorized copying set forth in Clause 4.

10.02. Manitoba will inform educational institutions that they are required to notify Manitoba of any Claim made against them as soon as reasonably possible after they become aware of such Claim in order for the indemnity in Clause 9 to apply.

10.03. When Manitoba believes it appropriate, Manitoba will submit to the Collective, for its review and comment, any informational material concerning this Licence Agreement which Manitoba intends to circulate to educational institutions.

10.04 Manitoba, in consultation with the Collective, shall develop a compliance protocol for the purpose of dealing with breaches of the terms and conditions of authorized reprographic reproduction. This protocol shall include identification of the appropriate legal entity accepting liability and provision for consultation with Manitoba for the purpose of avoiding legal action. This protocol will be submitted to the Collective for its comments and approval, such approval not to be unreasonably withheld.

11. **SCHEDULES.** Schedule "A" forms a part of this Licence Agreement.

12. **AMENDMENT OF LICENCE AGREEMENT.** This Licence Agreement, except as otherwise provided by this Licence Agreement, may be varied only by a document signed by the parties hereto.

13. **NOTICES.** Any notices under this Licence Agreement shall be in writing and shall be deemed sufficiently given if sent pre-paid by registered mail or courier or facsimile addressed to the addresses of the parties as set forth above, but in the case of notices sent by facsimile to the facsimile numbers as set forth below, and in the case of all notices sent to Manitoba, to the attention of the Director, Instructional Resources Branch, or to such other persons, addresses and facsimile numbers as the parties may in writing advise. Any notices so sent by registered mail shall be deemed given at the commencement of business on the fifth business day following the day of mailing the notice, provided that there is no postal interruption in effect which would delay transmission of the notice. Any notices so sent by courier or facsimile shall be deemed given when received.

Facsimile numbers: Manitoba (204) 945-8756
(Attention: Director, Instructional Resources Branch)

The Collective (416) 366-6635
(Attention: National Director)

14. **DISPUTES.** The parties will endeavour to resolve any disputes between them regarding the interpretation of this Licence Agreement or the terms of extension of this Licence Agreement after the initial term or after any extension thereof pursuant to Clause 7.02 through discussion and may agree to resolve such disputes by arbitration. It is agreed that neither party shall commence an

application to the Copyright Board until (a) it has endeavoured to discuss with the other party whether the parties can agree to submit the dispute on the terms of extension to arbitration as set forth in Clause 15, and (b) one party has advised the other party in writing, at least ten (10) days prior to giving any notice required on an application to the Copyright Board, that it is unwilling to proceed by arbitration.

15. **ARBITRATION.** If the parties agree in writing to have a dispute resolved by arbitration as set out in Clause 14, then such dispute shall be submitted within fourteen days (14) of such agreement to an arbitrator chosen by the Collective and an arbitrator chosen by Manitoba. The arbitrators shall select a third arbitrator, and failing agreement on the third arbitrator or agreement on procedure, such appointment or procedure shall be in accordance with the rules for the Conduct of Arbitrations of the Arbitrators' Institute of Canada Inc. The majority decision of the arbitrators shall be final and binding upon the parties.

16. **TERMINATION FOR DEFAULT.** Should either party commit any breach of its obligations hereunder and remain in breach thirty (30) days after receiving notice to rectify the breach, the other party may terminate this Licence Agreement forthwith by notice of termination delivered to the party in breach, provided that:

(i) there is no related dispute which the parties have agreed in writing to submit to arbitration;

(ii) the party wishing to terminate is not itself in breach of its obligations hereunder; and

(iii) for the purpose of this Clause 16 and if Manitoba has complied with the compliance protocol established under Clause 10.04, a breach of the terms and conditions of authorized reprographic reproduction by an educational institution will be deemed not to be a breach of this Licence Agreement.

17. **GOVERNING LAW.** This Licence Agreement shall be governed by and construed in accordance with the laws of Canada and the Province of Manitoba applicable to contracts negotiated, executed and wholly performed within Manitoba, and the parties consent to the jurisdiction of the courts of Manitoba and of Canada.

18. **NO ASSIGNMENT.** This Licence Agreement shall not be assigned by either the Collective or Manitoba without the prior written consent of the other.

IN WITNESS WHEREOF the parties have executed this Licence Agreement, which comes into effect the day, month and year first written on page 1 of this Licence Agreement.

CANADIAN REPROGRAPHY COLLECTIVE

Co-chair

Co-chair

National Director

Date: _____

THE GOVERNMENT OF MANITOBA
as represented by

The Minister of Education and Training

Date: Dec 3/91

SCHEDULE "A"

EDUCATIONAL INSTITUTIONS COVERED BY THE LICENCE AGREEMENT BETWEEN CANADIAN REPROGRAPHY COLLECTIVE AND HER MAJESTY THE QUEEN IN RIGHT OF MANITOBA.

For the purpose of this Licence Agreement, an "educational institution" means any or all of the following:

1. School divisions

2. School districts

3. The following institutional schools:

   Manitoba School for the Deaf
   Marymound School
   Children's Home of Winnipeg
   Rossbrook House
   Seven Oaks Centre for Youth

4. The following supported independent schools receiving grants under subsection 60(5) of the Public Schools Act:

   Balmoral Hall School for Girls
   Bethel Christian Academy
   Calvin Christian School
   Christ the King
   Christian Heritage
   Community Bible Fellowship Christian
   Dufferin Christian
   Faith Baptist Christian Academy
   Holy Cross
   Holy Ghost
   Immaculate Heart of Mary
   Immanuel Christian
   Joseph Wolinsky
   Killarney Christian Academy
   Lakeside Christian
   Linden Christian Elementary
   McGillivray Montessori
   Mennonite Brethren Collegiate
   Mennonite Collegiate Institute
   Mennville

Msgr. James K. MacIsaac
Oholei Torah
Pine Creek Colony
Potter's Wheel
Ramah Hebrew
Red River Valley Jr. Academy
Shady Lane
Springs of Living Water
Steinbach Christian High School
St. Alphonsus
St. Boniface Diocesan
St. Charles Academy
St. Edward
St. Emile
St. Gerard
St. Ignatius
St. John Brebeuf
St. John's Ravenscourt
St. Joseph the Worker
St. Mary's Academy
St. Mary's Montessori (Children's House)
St. Maurice
St. Paul's High
St. Vladimir's College
Talmud Torah/I.L. Peretz
The King's
The Laureate
Torah Academy
University of Winnipeg Collegiate
Western Christian College
Westgate Mennonite
Westpark
Winnipeg Mennonite Elementary
Zion Christian Academy

5. Special Materials Services, Child Care and Development Branch, Programme Development and Support Service Division, Manitoba Education and Training.

YES YOU MAY COPY
Information About the Licence Agreement With CANCOPY

Manitoba Education and Training

Effective July 1, 1991

Good News for Teachers!

Now, most of your non-profit copying of published works is licenced under an agreement between Manitoba Education and Training and the Canadian Reprography Collective (CANCOPY). This agreement allows you to make copies of published materials for instructional, recreational, professional, research, archival, administrative or communication purposes related to work at your school, division or district. Audiovisual materials are **NOT** covered by this agreement.

What Does the Licence Agreement With CANCOPY Allow?

The licence agreement allows you to copy either **10 per cent** of a published work or any of the following published materials (whichever is greater):

- an entire single short story, play, essay, article, poem, or item of print music from a book or a periodical issue containing other works;
- an entire newspaper article or page;
- an entire entry from an encyclopedia, dictionary, annotated bibliography, or similar reference work;
- an entire reproduction of an artistic work (including drawings, paintings, prints, photographs, and works of sculpture, architecture, or artistic craftsmanship) from a book or periodical issue containing other works;
- an entire chapter of a work;
- pages to replace damaged or missing pages in a publication belonging to a school, division or district (if reasonable efforts have been made to purchase a replacement copy);
- a single copy of a rare or fragile publication in a library in order to prevent its deterioration;
- a single copy of a missing or damaged out-of-print work in order to replace one that was in the holdings of a library (if reasonable efforts have been made to purchase a replacement copy *and* CANCOPY is notified).

All copies must contain a reference to the author, artist or illustrator, and source of the material.

What About Special Format Materials?

The production of copies (i.e., on audiotape, in braille, and in large print; and machine-readable copies) of Canadian and Australian works for students who are blind, visually impaired, or otherwise unable to read normal print because of a disability, is permitted.

How Many Copies Can You Make?

- a copy for each student
- two copies for each teacher
- additional copies for administrative purposes and for distribution to parents and the community
- a reasonable number of copies for reference in or loan by libraries

NOTE: The Thomson Newspaper Corporation, which is not a member of CANCOPY, is permitting teachers free, unlimited copying access to all their newspapers, including the Winnipeg Free Press, Brandon Sun and Brandon Today.

To obtain permission to copy beyond the terms of the licence, one must contact CANCOPY or the copyright owner directly.

The Canadian Reprography Collective
379 Adelaide Street West, Suite M1
Toronto, Ontario M5V 1S5
Telephone: (416) 366-4768
FAX: (416) 366-6635

For Further Information

See the booklet Copyright in Manitoba: What Teachers Should Know or contact the Instructional Resources Branch, Manitoba Education and Training, at 945-7833 / 7823 or 1-800-282-8069 and ask for the appropriate extension.

DOCUMENTS NE POUVANT ÊTRE COPIÉS
Renseignements concernant l'entente conclue avec CANCOPY

Éducation
et Formation
professionnelle
Manitoba

En vigueur le 1er juillet 1991

Quels sont les documents qu'on ne peut copier en vertu de l'entente conclue avec CANCOPY?

- les manuels d'instructions, les cartes de travail offertes sur le marché, les fiches de travail, les tests et les questionnaires d'examen déjà publiés
- les cahiers d'exercices
- les publications dont l'information est couverte par des droits de propriété et ayant une valeur commerciale, comme des bulletins d'information à tirage restreint
- les oeuvres artistiques originales, y compris les photographies et les gravures
- les négatifs de photographies et les diapositives
- les cahiers de musique publiés à l'intention des choeurs, des orchestres, des groupes, des ensembles musicaux et des artistes individuels
- les publications contenant un avis interdisant expressément de copier leur contenu et ce, même en vertu d'une entente conclue avec une société de gestion collective
- les ouvrages non encore publiés

Pour abtenir la permission de copier l'un ou l'autre de ces ouvrages, il faut communiquer directement avec le titulaire du droit d'auteur.

Qu'est-ce qui est interdit par l'entente conclue avec CANCOPY?

- copier de façon cumulative le même ouvrage protégé par le droit d'auteur
- faire des anthologies à partir d'extraits de documents qu'on aura reliés puis copiés ensemble

Quels sont les documents exclus de l'entente conclue avec CANCOPY?

- Certains éditeurs et auteurs ont choisi de ne pas faire partie de l'entente conclue avec CANCOPY. Par conséquent, seule une utilisation équitable ou restreinte de leurs oeuvres est autorisée, conformément aux dispositions de la *Loi sur le droit d'auteur* du Canada. Avant de copier ces documents, il faudra donc en obtenir la permission en s'enquérant directement auprès des auteurs ou des éditeurs en question.
- Parmi les ouvrages ne faisant pas partie de l'entente, on retrouve tous les titres de Nelson Canada, et le *Canadian Law Book*
- Parmi les auteurs canadiens, seuls les ouvrages de Clarence Boon et de Gladys Downes ne font pas partie de l'entente.
- Pour obtenir la liste complète des auteurs et des éditeurs britanniques et américains exclus de l'entente, prière de consulter le *Répertoire des oeuvres exclues de l'entente.*

Qu'en est-il des documents de format non conventionnels?

La reproduction de documents de format non conventionnel (bandes sonores, documents en braille, en gros caractères ou sur disquettes) est autorisée pour les catégories suivantes: "manuel d'instructions, cartes de travail, etc." et "cahiers d'exercices".

Pour obtenir la permission de copier plus d'exemplaires que prévu en vertu de l'entente, il faut d'abord communiquer directement avec le titulaire du droit d'auteur, ou encore avec CANCOPY, à l'adresse suivante:

The Canadian Reprography Collective
379, Adelaide ouest, Bureau M1
Toronto (Ontario)
M5V 1S5
Téléphone: (416) 366-4768
Télécopieur: (416) 366-6635

Pour en savoir plus long

Pour obtenir de plus amples renseignements, on peut lire la brochure intitulée *Droit d'auteur au Manitoba: ce que l'enseignant doit savoir*, ou encore communiquer avec la Direction des ressources éducatives françaises du ministère de l'Éducation et Formation professionnelle au 945-8554 ou au 1-800-282-8069 (poste 8554).

RÉPERTOIRE DES OUVRAGES EXCLUS DE L'ENTENTE

OEUVRES EXCLUES DE RÉPERTOIRE DE LA CANADIAN REPROGRAPHY COLLECTIVE

Les oeuvres publiées à l'extérieur du Canada, de l'Australie, de la France, de l'Allemagne, de la Grande-Bretagne, de l'Islande, de la Norvège, de l'Espagne, de la Suisse et de la principauté du Liechenstein, et des États-Unis sont exclues de la présente licence.

Dans les pays susmentionnés, certains auteurs et certains éditeurs ont choisi de ne pas se faire représenter par la Canadian Reprography Collective (CANCOPY). La Convention attributive de licence ne s'applique donc pas à leurs oeuvres. Une liste de ces auteurs et de ces éditeurs figure ci-dessous. Il faut s'adresser directement à l'éditeur ou à l'auteur concerné pour obtenir la permission de reproduire l'une de ces publications dont la reproduction n'est pas autorisée par la *Loi sur le droit d'auteur*.

Le présent Répertoire des ouvrages exclus de l'entente fait partie de la Convention attributive de licence établie le 1er juillet 1991 entre la Canadian Reprography Collective et le ministère de l'Éducation et Formation professionnelle du Manitoba.

Éditeur	Marque d'éditeur ou auteur	Titre
American Chemical Society	Chemical Abstracts Service	
American Public Health Association Publications		toutes les oeuvres
Anbar Publications Ltd		toutes les oeuvres
Arnold (Edward) (Publishers) Ltd	Holloway, J. & S. Picciotto	State & Capitol—A Marxist Debate
Baskerville Publications (Ltd)		Punch Digest for Doctors
BBC Publications		la licence s'applique à tous les livres de la BBC, à l'exclusion de tous les périodiques et revues spécialisées, documents relatifs aux logiciels, notes des enseignants, brochures à l'intention des élèves et notes de radiovision publiés à la demande de la School Broadcasting Council
Bill Communications (U.S.)		tous les titres à l'exclusion de Sales and Marketing Management

Éditeur	Marque d'éditeur ou auteur	Titre
Blackie & Son Ltd	Blackie International Textbook Company Leonard Hill Surrey University Press	tous les titres d'ouvrages scolaires, professionnels et de référence
	Boon, Clarence	toutes les oeuvres
BPP Holdings PLC		toutes les oeuvres
British Industrial Publicity Overseas		toutes les oeuvres
British Institute of Radiology		British Journal of Radiology
British Psychological Society		tous les livres
British Standards Institution		toutes les oeuvres
British Telecom		toutes les oeuvres
Canada Law Book		toutes les oeuvres
Case Clearing House (U.K.)		toutes les oeuvres
Century Hutchinson Ltd	Johnson, J.H.	Running Your Own Restaurant
Chapter 3 Publications (U.K.)		toutes les oeuvres
Chatto & Windus	Origo, Iris	toutes les oeuvres
Checkmate Publications Ltd (U.K.)		toutes les oeuvres
Conde Nast Publications		toutes les oeuvres
Conway Maritime Press Ltd		toutes les oeuvres
Croom Helm Ltd	Young, James	Rousing of the Scottish Working Class
Dent (JM) & Sons Ltd (U.K.)	Thomas, Dylan	toutes les oeuvres

Éditeur	Marque d'éditeur ou auteur	Titre
Dorling Kindersley Publications Ltd	British Red Cross Society	First Aid Manual
	St.John's Ambulance Assoc. St.Andrew's Ambulance Assoc.	Caring for the Sick
	Downes, Gladys	toutes les oeuvres
Encounter Ltd (U.K.)		toutes les oeuvres
Encyclopædia Britannica International Ltd (U.K.)		toutes les oeuvres
Environmental Data Sevices Ltd.		toutes les oeuvres
ESDU International (U.K.)		toutes les oeuvres
Estates Gazettes (U.K.)	Davidson, A.W.	Parry's Valuation & Investment Tables
	Jones Lang Wooton & South Bank Polytechnic	Glossary of Proper Terms
	Smith, P.F.	West's Law of Dilapidations
	Walton & Essayon	Adkin's Landlord & Tenant
Eyre & Spottiswoode Publishers		toutes les oeuvres
Faber & Faber Ltd	Clive, Paul	Card Tricks Without Skills
	Downie, P.A.	toutes les oeuvres
	Foskett, Daphne	Dictionary of British Miniature Painters
	Grimwade, Arthur	Samuel Cooper
		London Goldsmiths & Rococo Silver
Findlay Publications	Modern Medicine Publications	
Frederick's Communications PLC		Career Accountant
		Study Directory

Éditeur	Marque d'éditeur ou auteur	Titre
FT Business Information (U.K.)		The Banker Financial Advisor IC Stockmarket Letter The International Investors Chronicle Money Management Offshore Advisor Pensions Management Resident Abroad
Gordon & Breach Science Publishers Ltd (U.K.)		toutes les oeuvres
Gordon V. Thompson Music (Cda)		la documentation comprise dans n'importe quelle oeuvre avec la permission d'une tierce personne et selon les conditions indiquées dans l'oeuvre Canada Is...Music 1-2, Canada Is...Music 3-4, Canada Is...5-6 (y compris les manuels scolaires, les guides scolaires, les livres à l'intention des élèves et des enseignants, et les livres d'acompagnement au piano.)
Graphic Books International Ltd	Fairburn, T.	Fairburn System of Visual References

Éditeur	Marque d'éditeur ou auteur	Titre
Harcourt Brace Jovanovich (U.S.)	Academic Press, Books for Professionals, Dryden Press, Holt, Rinehart and Winston, Johnson Reprint Corporation, Miller Accounting Publications, Psychological Corporation	la documentation comprise dans n'importe quelle oeuvre avec la permission d'une tierce personne et selon les conditions indiquées dans l'oeuvre • poésie • ouvrages et matériel scolaires • publications commerciales par l'un des auteurs suivants: Arnold Adoff, William W. Amos, Hans Christian Anderson, Maxwell Anderson, John Walsh Anglund, Hannah Arendt, Louise Armstrong, James Atlas, Corinna Babb, Phillip Barry, Harry Behn, Quentin Bell, Helen Bevington, Jimmy Buffet, Arthur C. Clarke, James Gould Cozzens, e e cunmings, Adelle Davis, Milovan Djilas, Amelia Earhart, Umberto Eco, Loren Elseley, T.S. Eliot, Marcia Falk, Dudley Fitts & Robert Fitzgerald, Mem Fox, Ellen Glasgow, Virginia Hamilton, Mark Helprin, Leland Jacobs, James Weldon Johnson, William Jovanovich, John Maynard Keyes, Kathleen Krull, C.S. Lewis, Anne Morrow Lindbergh, Myra Cohn Livingston, Konrad Lorenz, Helen MacInnes, Mary McCarthy, Jan Morris, Bernard Most, Glenn W. Most & William W. Stowe, Vladimir Nabokov, Anais Nin, Flannery O'Connor, Liam O'Flaherty, C.K. Ogden & I.A. Richards, George Orwell, Amos Oz, Tomie de Paola, Nancy Patz, Octavio Paz, Gifford Pinchot, Katherine Anne Porter, Donald Regan, Erich Maria Remarque, Alice Ritchie, Norma Rosen, Bernard Rudofsky, Antoine de Saint-Exupery, Carl Sandburg, William Saroyan, Beatrice Schenke de Regniers, Charles Simic, Louis Slobodkin, George Spater & Ian Parsons, Anna Swir, James Thurber, P.L. Travers, Diana Trilling, Lionel Trilling, Louis Untermeyer, Galina Vishnevskaya, Alice Walker, Wendy Wasserstein, Eudora Welty, Alma Mahler Werfel & E.B. Ashton, Richard Wilbur, Don & Audrey Wood, Virginia Woolf, Jane Yolen
Harvard Business School Publications		toutes les oeuvres
Hawthorne Press (U.K.)	Kutzli, R.	Creative Form Drawing Vol.1
Hobsons Publishing PLC		toutes les oeuvres
Hodder & Stoughton Ltd (U.K.)	Foster, A.D.	Flinx in Flux
ICB Publications (U.K.)		ICB Newsletter
Independent Television Publications Ltd (U.K.)		toutes les oeuvres

Éditeur	Marque d'éditeur ou auteur	Titre
Industrial Media Ltd (U.K.)		Artificial Intelligence Business, ICL User
Institution of Chemical Engineers (U.K.)		Loss Prevention Bulletin
IOP Publishing Ltd (U.K.)		Plasma Physics & Controlled Fusion
Jazz Journal Ltd (U.K.)		Teeline Magazine
Jewish Chronicle Publications		Jewish Travel Guide Jewish Year Book
John Hopkins University		toutes les oeuvres à l'exclusion des revues spécialisées
Kluwer Academic Publishers (U.K.)		Acta Entomologica Bohemoslovaca Acta Mathematica Hungarica Annals of Global Analysis and Geometry Annals of the Institute of Statistical Mathematics Biologica Plantarum Economic Titles/Abstracts Folia Geobotanica et Phytotaxonomica Folia Parasitologica Folia Zoologica Geneva Papers on Risk and Insurance Theory International Agrophysics International Review of Education Nederlandsche Bank—Annual Report Nederlandsche Bank—Quarterly Bulletin Netherlands International Law Review Netherlands Yearbook of International Law Periodica Mathematica Hungarica Photosynthetica Review of Austrian Economics Studia Logica Veterinary Quarterly
Lancet Ltd (U.K.)		toutes les oeuvres
The Law Society (U.K.)	formulaires juridiques lorsque la Law Society Publisher est titulaire du droit d'auteur	
Leaf Coppin Publishing	Godfree, S.	Land Use Gazetteer

Éditeur	Marque d'éditeur ou auteur	Titre
Legalese Ltd.		Legal Business
Letts (Charles) & Co Ltd (U.K.)	tous les titres de Berlitz	
Lewis (HK) Ltd		Ishihara's Test for Colour Blindness
London Mathematical Survey	Russian Mathematical Surveys	
Longman Group (UK) Ltd	Parveen, M.	GCSE Assignment Based Series
L.W.W.F. (U.K.)		toutes les oeuvres
Marcham Manor Press		toutes les oeuvres
Maxwell Macmillan Canada		toutes les oeuvres
Morgan-Grampian PLC		Building Refurbishment & Maintenance Catering Civil Engineering Communications Systems World-Wide Design Engineering Electronic Times Estates Time Farming News Financial Pulse Food Manufacture International Livestock Farming P.T.N. Europe Practitioner, The Pulse TTG UK & Ireland TTG Europe Tunnels & Tunnelling What's New in Building Computing What's New in Electronics What's New in Farming What's New in Interiors What's New in Processing
National Christian Education Council (U.K.)	divers auteurs	la collection "Bible Stories" la collection "Getting to Know About" la collection "Our Friends"
Nelson Canada		toutes les oeuvres

Éditeur	Marque d'éditeur ou auteur	Titre
Nisbet (James) & Co Ltd (U.K.)	Stapleton, D.F. Wright, W.D.	Lexicon Crosswords Beginners Crosswords First Dictionary Boxwords
Northern Telecom Limited		toutes les oeuvres
Online Publications (U.K.)		toutes les oeuvres
Philographic Publications (U.K.)		toutes les oeuvres
Phonic Blend Systems (U.K.)		toutes les oeuvres
Plessey Co PLC (U.K.)		toutes les oeuvres
Readers Digest Association Ltd (U.K.)		toutes les oeuvres
Redwood Publishing		BBC Sportsyear Magazine Expressia Intercity Magazine M & S Magazine Holiday '89 Holiday '90
Research Studies Press Ltd (U.K.)	Lewis, E., B. Currie & S. Haykin Moore, J. & R. Pizer	Detection & Classification of Ice Moment Methods in Electromagnetics
Revilo Language Cards (U.K.)	Grey, Oliver	Carte Blanche
Riba Publications Ltd (U.K.)	tous les formulaires publiés par RIBA, au nom du Joint Contracts Tribunal	
Royal Meteorological Society (U.K.)		toutes les oeuvres
Scolar Press	Foreman, L. Hoffnung, G. & J. Symonds Burnett, J.	Bax Isle of Cats Plenty & Want
Scottish Universities Law Institute	Scottish Law Institute Series	

Éditeur	Marque d'éditeur ou auteur	Titre
Sycamore Press (U.K.)	McWhirr, Alan (ed)	la collection "Sycamore Leaves"
Thomson (DC) & Co Ltd (U.K.)		toutes les oeuvres
Trade Research Publications (U.K.)	Import Market Reports	Knitwear
Tressell Publications	Pike, A.	la collection "Import Reports"
	Simkin, D. & A. Pike	Into the Unknown
	Simkin, D., A. Pike & J. Simkin	Wagons West
	Simkin, D. & A. Pike	1665 Plague of London
	Coate, L., J. Simkin & M. Ellis	Attack on Somme
University of Wales Press		voir la liste pages 9 et 10
University Tutorial Press Ltd (U.K.)	Kirby, D.	Perspective & Problems
	Tomlin, C.E.	Commerce in Everyday Life
		Modern Office Practice
Van Nostrand Reinhold (International) Co Ltd	Simmonds, Kenneth	Case Problems of Marketing
Wiley (John) & Sons (U.K.)	Bentley	Computer Project Management
	Burton	Dictionary of Mini Computing & Micro Computing
	Galland	Dictionary of Computing Data & Data Communications
	Gardner	Atlas of Cancer Mortality
		Atlas of Mortality from Selected Diseases
	Held	Data Compression—Technique and Applications
	Schmidt	GPSS Fortran
Wolf Awareness Inc. (Cda)		toutes les oeuvres

Éditeur	Marque d'éditeur ou auteur	Titre
University of Wales Press	Owen, Roy	Antigone (Dramau'r Byd)
	Roberts, John W.	Arloeswyr'y Rhellffyrdd Camlesi Cymru a Lloegr Mudiadau ym Myd Merched Owain Glyndwr Pac Bargen Hanes: 1 Pac Bargen Hanes: 2 Ymgyrch Y Norman Medieval Welsh Monastries
	Morris, Robert M.	Becal Cenhedloedd Unedig Geralit a'i Gefndir Golwg ar Ganrif Gyrfa Geralit Harri Vlll a'i Oes John F. Kennedy
	Jenkins, R.T.	Bywgraffiadur Cymreig 1941-50
	Sartre, Jean-Paul	Caeedlg Ddor
	Camus, Albert	Caligula
	Williams, Syr Ifor	Canu Taliesin Gwyneddon MS.3
	Stoddart, John	Cerddi Gaeleg Cyfoes
	Bebb, Einlona	Chwyldro yn Rwsla Ffyrdd Cymru Hitler a'r Natsiaid Rwsla wedi'r Chwyldro
	Morris, Robert	Colll'r Hogiau Cromwell Rhyfel Cartref Rhyfel y Degwm Senedd i'l Bobl Siarl l a'i Fyd Swn yr Ymladd Gerald and His World Gerald of Wales
	Stephens, Meic	Cydymaith l Lenyddiaeth Cymru
	Beckett, Samuel	Diweddgan

Éditeur	Marque d'éditeur ou auteur	Titre
University of Wales Press (suite)	Anoullh, Jean	Ehedydd
	Price, Emry	Ennlll y Bleidlas Wladwrlaeth Les
	Roberts, John Wyn	Faenor a'r Pla Du Undebau Llafur
	Williams, J. Llywelyn	Gwaith Guto'r Glyn
	Jones a Dewi, Gerwyn	Helyntion Iwerddon
	Roberts, John Alan	Llychlynwyr
	Carr, Glenda	Morynlon
	Roberts, J.W.	Mynachlogydd yn yr Oesoedd Canol
	Morgan, Gerald R.	Rhufeinniaid yng Nghymru
	Owen, Keith	Trosedd a Chosb
	Wiess, Peter	Trotsci'n Alltud
	Ionesco, Eugene	Wers/Y Tenant Newydd
	Durrenmatt, Friedrich	Ymweliad yr Hen Foneddiges
	Kay, Hether	Land of the Red Dragon
	Edwards, Bernard	Masters Next to God
	Salmons, J.	Renaissance in Ferrara
	Morgan, Gerald	Romans in Wales This World of Wales
	Davies, Alun Elrug	Sir Ifor Williams: A Bibliography

fin du Répertoire des ouvrages exclus de l'entente de CANCOPY

DROIT D'AUTEUR AU MANITOBA

Ce que l'enseignant doit savoir

Éducation et Formation professionnelle Manitoba
Direction des ressources éducatives françcaises

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English language version available from the Instructional Resources Branch, Manitoba Education and Training, Box 3, 1181 Portage Avenue, Winnipeg, Manitoba, R3G 0T3.

Afin d'éviter la lourdeur qu'entraînerait la répétition systématique des termes masculins et féminins, le présent document a été rédigé en utilisant le masculin pour désigner les personnes. Les lectrices et les lecteurs sont invité(e)s à en tenir compte.

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1. De quelle façon la *Loi sur le droit d'auteur* touche-t-elle l'enseignant?

En vertu de la *Loi sur le droit d'auteur*, il est interdit de copier une publication sans l'autorisation du titulaire du droit d'auteur. La Loi prévoit toutefois la création de sociétés de gestion collective comme le Canadian Reprography Collective (CANCOPY), qui représentent les auteurs et les éditeurs et qui autorisent en leur nom la copie des ouvrages déjà publiés.

Cependant, il est permis de copier certains documents sans pour autant enfreindre la Loi telle qu'elle est rédigée à l'heure actuelle. Par exemple, les documents qui relèvent du domaine public peuvent être copiés sans problème. Il en va de même d'une utilisation équitable ou restreinte d'un document aux fins d'études ou de recherches.

2. Pourquoi une entente avec CANCOPY est-elle nécessaire?

À l'heure actuelle, La *Loi sur le droit d'auteur* interdit à l'enseignant de copier la plupart des documents dont il a besoin pour son travail. L'entente conclue avec CANCOPY permet à l'enseignant de copier une grande partie de ces documents. CANCOPY utilisera les redevances qu'il perçoit en vertu de l'entente pour rembourser les auteurs et les éditeurs dont les ouvrages ont été copiés.

3. Quand l'entente conclue avec CANCOPY prend-elle fin?

L'entente initiale conclue entre CANCOPY et Éducation et Formation professionnelle du Manitoba, qui représente les écoles de la province recevant des fonds publics, demeure en vigueur du 1er juillet 1991 au 30 juin 1992. L'entente pourra être prolongée pour une période allant jusqu'à douze mois.

On s'attend à ce qu'une nouvelle entente soit négociée d'ici la fin de la période initiale.

4. Que peut-on copier et quelles sont les limites imposées?

On peut copier, à des fins non lucratives, différents documents entrant dans le mandat de l'établissement d'enseignement. On peut copier ces documents pour des recherches, à titre d'information ou à des fins pédagogiques, récréatives, professionnelles, archivistiques ou administratives. L'enseignant est autorisé à copier soit **10 pour cent** d'une publication donnée, soit l'un ou l'autre des documents suivants (le plus grand nombre de pages étant retenu):

a) la totalité d'une nouvelle, d'une pièce de théâtre, d'un essai, d'un article, d'un poème ou d'une pièce musicale tirés d'un livre ou d'un périodique contenant d'autre matériel;

b) la totalité d'un article ou d'une page tirée d'un journal;

c) la totalité d'une définition tirée d'une encyclopédie, d'un dictionnaire, d'une notice bibliographique ou d'un ouvrage de référence similaire;

d) la reproduction d'une oeuvre artistique (dessin, peinture, gravure et photographie, ouvrage de sculpture, d'architecture et d'artisanat, etc.), tirée d'un livre ou d'un périodique contenant d'autre matériel;

e) tout un chapitre d'un ouvrage.

Conformément aux pratiques existantes, toutes les copies doivent mentionner le nom de l'auteur, de l'artiste ou de l'illustrateur, ainsi que la source d'où elles ont été tirées.

5. **Qu'a-t-on le droit de copier lorsqu'un document est rare ou fragile, lorsque certaines pages manquent ou sont endommagées, ou lorsque l'exemplaire que l'on possède en bibliothèque est endommagé ou perdu et que l'édition de cet ouvrage est épuisée?**

Si un ouvrage faisant partie de la collection de la bibliothèque est rare ou fragile, il est possible de le copier en entier pour éviter qu'il ne se détériore. Si certaines pages d'un ouvrage appartenant à un établissement d'enseignement sont endommagées ou manquantes, on peut copier les pages en question, si on a fait des efforts pour se procurer un nouvel exemplaire de l'ouvrage dans un laps de temps et à un prix raisonnables. Si un ouvrage faisant partie de la collection de la bibliothèque est endommagé ou perdu et que l'édition est épuisée, il est possible de copier un seul exemplaire de cet ouvrage, si on a fait des efforts pour le remplacer dans un laps de temps et à un prix raisonnables. Si le cas se produit, CANCOPY doit en être averti.

6. **Combien d'exemplaires peut-on copier?**

Il est possible de copier un exemplaire par élève, deux exemplaires par enseignant, des exemplaires additionnels pour l'administration et pour la distribution aux parents, ainsi qu'un nombre raisonnable d'exemplaires gardés à titre de référence ou pouvant être prêtés par les bibliothèques.

7. **Existe-t-il des documents qu'on ne peut copier en vertu de lentente conclue avec CANCOPY?**

L'entente se rapporte à la plupart des documents dont l'enseignant a besoin pour son travail. Cependant, certaines catégories de documents ne font pas partie de l'entente.

L'entente ne permet pas la copie des documents suivants:

a) les manuels d'instructions, les cartes de travail offertes sur le marché, les fiches de travail, les tests et les questionnaires d'examen déjà publiés;

b) les cahiers d'exercices;

c) les publications dont l'information est couverte par des droits de propriété et ayant une valeur commerciale, comme des bulletins d'information à tirage restreint;

d) les oeuvres artistiques originales, y compris les photographies et les gravures;

e) les négatifs de photographies et les diapositives;

f) les cahiers de musique publiés à l'intention des choeurs, des orchestres, des groupes, des ensembles musicaux et des artistes individuels;

g) les publications contenant un avis interdisant expressément de copier leur contenu et ce, même en vertu d'une entente conclue avec une société de gestion collective;

h) les ouvrages non encore publiés;

i) les documents inscrits dans le *Répertoire des ouvrages exclus de l'entente.*

8. **Comment l'enseignant peut-il savoir quels sont les documents inscrits dans le Répertoire des ouvrages exclus de l'entente?**

Des exemplaires du Répertoire seront placés à proximité des photocopieurs situés dans les bureaux de l'école, de la division ou du district scolaire. Ce document sera mis à jour de façon régulière afin que l'ensemble des enseignants sachent quels sont les ouvrages qu'ils ne peuvent copier en vertu de l'entente conclue avec CANCOPY.

9. **Est-ce interdit de copier les documents inscrits dans le Répertoire des ouvrages exclus de l'entente?**

Oui. Les modalités de l'entente conclue avec CANCOPY interdisent la photocopie des documents inscrits dans le Répertoire, sauf dans les cas permis par la *Loi sur le droit d'auteur* (utilisation équitable et restreinte du document). Avant de copier des documents faisant partie de Répertoire, l'enseignant devra au préalable en obtenir la permission en s'enquérant directement auprès de l'auteur ou de l'éditeur.

10. **L'enseignant doit-il aussi tenir compte des Répertoires américains et britanniques?**

Oui. CANCOPY ayant conclu des ententes avec des sociétés de gestion collective du Royaume-Uni et des États-Unis, les enseignants sont autorisés à copier la plupart des ouvrages britanniques et américains. Mais pour obtenir le droit de représenter des auteurs et des éditeurs d'autres pays, CANCOPY doit tenir compte des Répertoires dressés par les organismes de gestion collective de ces pays.

Ces Répertoires ont été publiés à la suite d'ententes que ces sociétés ont conclues avec les auteurs et les éditeurs de leur pays. Par conséquent, l'enseignant n'a pas le droit de copier les ouvrages inscrits dans l'un ou l'autre de ces répertoires sans le consentement explicite du titulaire du droit d'auteur, sauf dans les cas autorisés en vertu de la *Loi sur le droit d'auteur*.

11. **L'entente permet-elle à l'enseignant de copier un livre en entier au cours de l'année?**

Non. Il est interdit de copier de façon systématique ou cumulative le même ouvrage ou document dans le cadre d'un cours ou d'un programme d'études.

12. **L'enseignant est-il autorisé à copier des extraits d'ouvrages différents et de les relier pour en faire une anthologie?**

Non. Il est interdit de faire des anthologies à partir d'extraits de documents qu'on aura copiés puis reliés ensemble.

13. **L'enseignant peut-il entrer des données tirées d'une publication dans un ordinateur puis imprimer ces données à l'intention des élèves de sa classe?**

Oui. Cependant, les données ne doivent pas être incluses dans une base de données accessible à d'autres utilisateurs exclus de l'entente. De plus, les modalités de l'entente continuent de s'appliquer, ce qui veut dire que l'enseignant ne peut entrer dans son ordinateur plus de données que l'entente ne le permet.

14. **Peut-on copier des documents en langue française?**

CANCOPY a conclu une entente avec la société de gestion collective du Québec, l'Union des écrivains et écrivaines québécois (UNEQ), qui permet de copier les documents en langue française.

15. **Peut-on copier des documents en d'autres langues?**

CANCOPY ayant conclu des ententes réciproques avec différentes sociétés de gestion collective, l'enseignant a le droit de copier les documents dont ces sociétés ont la responsabilité dans les pays suivants: États-Unis, France, Espagne, Suisse, Allemagne, Islande, Norvège, Australie et Royaume-Uni. En vertu de ces différentes ententes, l'enseignant a le droit d'utiliser les documents en provenance des pays susmentionnés, peu importe la langue dans laquelle ils sont écrits.

16. **L'entente interdit la copie de cahiers d'exercices. Qu'entend-on au juste par cahier d'exercices?**

Les cahiers d'exercices comprennent du matériel qui ne peut être utilisé par plus d'un élève. Sauf indication contraire, les auteurs et les éditeurs de ce type d'ouvrage s'attendent en général à ce que chaque élève possède son propre exemplaire.

17. **Comment se fait-il que l'entente permet la copie d'oeuvres musicales tirées d'un ouvrage de nature générale mais pas d'un cahier de musique destiné aux choeurs, aux orchestres, aux groupes, aux ensembles musicaux et aux artistes individuels?**

Les ouvrages de nature générale qui contiennent une oeuvre musicale sont considérés comme des livres faisant partie de l'entente conclue avec CANCOPY et peuvent ainsi être copiés. Par contre, les cahiers de musique et les partitions destinés aux choeurs, aux orchestres, aux groupes, aux ensembles musicaux et aux artistes individuels ne font pas partie de l'entente, car les titulaires du droit d'auteur ont formellement interdit toute forme de reproduction.

18. **Qu'arrive-t-il se un enseignant ne respecte pas les modalités de l'entente?**

Le non respect des modalités de l'entente constitue une violation du droit d'auteur, à moins que l'on possède une autorisation écrite de CANCOPY ou du titulaire du droit d'auteur. L'enseignant qui copie des documents sans permission encoure des pénalités prévues par la Loi.

19. **Les publications reproduites à l'intention des élèves non voyants, handicapés visuels ou incapables de lire en raison d'une déficience physique font-elles partie de l'entente?**

Oui. Les publications peuvent être reproduites sur bandes sonores, en braille, en gros caractères ou sur disquettes. Seuls les élèves non voyants, handicapés visuels ou incapables de lire en raison d'une déficience physique et leurs enseignants ont le droit de transcrire ces documents.

Les ouvrages publiés au Canada ou en Australie peuvent être transcrits en tout ou en partie, tant qu'ils ne font pas partie du Répertoire de ouvrages exclus de l'entente. Toutes les copies doivent mentionner le nom de l'auteur, de l'artiste ou de l'illustrateur, ainsi que la source d'où elles ont été tirées. Il est possible de reproduire pour ces élèves les documents entrant dans les catégories suivantes: "manuel d'instructions, cartes de travail, tests et questionnaires d'examen déjà publiés", ainsi que "cahiers d'exercices".

20. Comment CANCOPY redistribue-t-il aux auteurs et aux éditeurs les redevances qu'il perçoit?

Les modalités relatives à la redistribution des redevances que CANCOPY perçoit au nom des auteurs et des éditeurs n'ont pas encore été finalisées.

21. L'entente indique qu'il y aura des enquêtes par sondage. Quelles sont ces enquêtes et sont-elles vraiment nécessaires?

Les enquêtes par sondage aideront *CANCOPY* et Éducation et Formation professionnelle du Manitoba à évaluer le nombre total d'exemplaires copiés en vertu de l'entente. Le résultat de ces enquêtes permettra à CANCOPY d'établir le montant des redevances qui seront versées aux auteurs et aux éditeurs. On s'en servira aussi comme critère de base pour établir de nouvelles ententes.

22. L'entente s'applique-t-elle aux documents audiovisuels?

Non. L'entente ne s'applique qu'aux imprimés. En vertu de la *Loi sur le droit d'auteur*, il est interdit de copier des documents audiovisuels, des logiciels ou toute autre forme de document non imprimé sans le consentement de titulaire du droit d'auteur.

Les documents audiovisuels présentés en classe doivent porter la mention suivante: visionnement autorisé à des fins autres que la représentation publique. Il est à noter que la plupart des vidéocassettes louées ne peuvent être visionnées qu'à la maison et non pas en classe. Il en va de même des programmes de télévision enregistrés en vue de leur visionnement en classe, sauf lorsqu'on a obtenu la permission du titulaire du droit d'auteur de ces programmes.

23. Où l'enseignant doit-il s'adresser pour obtenir des renseignements supplémentaires?

Tous les bureaux des divisions et des districts scolaires et toutes les écoles ont reçu des affiches, le *Répertoire des ouvrages exclus de l'entente* et les modalités de l'entente conclue avec CANCOPY.

Pour toute question à propos de l'entente conclue avec CANCOPY, on peut communiquer directement avec la Direction des ressources éducatives françaises du ministère de l'Éducation et Formation professionnelle au 945-8554 ou au 1-800-282-8069 (poste 8554).

24. Comment peut-on rejoindre CANCOPY pour obtenir la permission de copier plus d'exemplaires que prévu en vertu de l'entente?

On peut communiquer avec CANCOPY à l'adresse suivante:

The Canadian Reprography Collective
379, rue Adelaide ouest, Bureau M1
Toronto (Ontario)
M5V 1S5

Téléphone: (416) 366-4768
Télécopieur: (416) 366-6635

Mars 1992

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1. Poster, 8½ x 11 -- **Yes you may copy**	
2. Poster, 8½ x 11 -- **You may not copy**	
3. **Exclusions List**	
4. Booklet -- **Copyright in Manitoba: what teachers should know**	
5. **Licence Agreement**	
6. Procedures Memo	
7. Policy Memo	
8. Order forms	

Français au verso

Bon de 1992 visant la commande de documents pédagogiques portant sur le droit d'auteur

Éducation et Formation professionelle Manitoba
Direction des ressources éducatives françaises

200, avenue de la Cathédrale
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Sans frais : 1-800-282-8069, poste 8554
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DOCUMENTATION COMMANDÉE	QUANTITÉ
1. Affiche de format 8½ x 11 -- **Documents pouvant être copiés**	
2. Affiche de format 8½ x 11 -- **Documents ne pouvant être copiés**	
3. **Répertoire des ouvrages exclus de l'entente**	
4. Livret -- **Droit d'auteur au Manitoba: Ce que l'enseignant doit savoir**	
5. **Convention attributive de licence**	
6. Note sur la procédure	
7. Note sur la politique	
8. Bons de commande	

English on reverse